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British Museum (Nat. Hist.). Dept. of Zoology
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CATALOGUE

OF THE

MOLLUSCA

IN

THE COLLECTION

OF THE

BRITISH MUSEUM.

E by
J. E. Gray

PART I.

CEPHALOPODA ANTEPEDIA.

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PREFACE.

The chief objects in forming the present Synoptical Catalogue have been, to exhibit at one view a complete list of all the specimens of Mollusca at present in the British Museum collection, and to furnish such an account of the species known to exist in other collections, but which are at present desiderata in the British Museum, as the materials at hand would permit me to compile, in order to enable travellers, collectors, and others, to assist in completing the national collection.

For this purpose, short descriptions have been given of all the genera and species of recent Mollusca at present known to exist in the different museums and private collections, and of the better-known fossil species of the various families.

At the end of each description is added an enumeration stating the state, age, country, or strata, and other peculiarities, of each specimen of the kind in the Museum collection; and, when the species is not at present in that collection, the museum in which it has been observed is often added after the general habitat or locality of the species. The different individuals of each species contained in the British Museum collection are indicated by the letters *a*, *b*, *c*, &c.

Those specimens which have been presented to the Museum have the name of the donor marked immediately after the

habitat. When there is no such indication, the specimens have been either purchased, or procured in exchange; and in this case, whenever the place or person from whom they have been received gives authenticity to the specimens, or adds any thing to their history, they are noted as being from such and such a collection or locality. Great attention has been paid to dates, and the generic and specific names which appear to possess priority in this respect have been adopted. Reference has also been made to the works in which the genera and species appear to have been first described or noticed.

Catalogues like the present can be little more than compilations, and I have freely availed myself of the labours of my predecessors in the same field; especially of those who have published monographs of the different groups: but the characters of the orders, families, minor groups, and species, have been compared and revised with the specimens. In this Part great use has been made of the researches of M. D'Orbigny, who, with the late Baron Férussac, has been for many years engaged in the study of these animals; and their works may be considered as the basis of this Part of the Catalogue.

J. E. GRAY.

12th February, 1849.

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INTRODUCTION.

Sub-Kingdom III. MOLLUSCA.

Body soft, fleshy, destitute both of any bony skeleton supporting jointed limbs, and of a hard ringed skin, or external skeleton. Generally elongate, walking on a single central foot or disk, and furnished with one or more pairs of organs on the head and sides. The nervous system consists of a number of medullary masses distributed to different parts of the body; one of the masses placed over the gullet, and enveloping it like a collar.

The body is furnished with a muscular coat, called a mantle, endued with a glairy humour, and generally furnished with a calcareous envelope called a shell, secreted by the mantle, and protecting the body, or the more vital organs of the animal.

There is generally a mantle on each side of the body, each furnished with a shell; but the shells on the two sides are often very differently sized, that on one of the sides is in some only rudimentary, and in others they both are wanting in the adult. Some animals which have two unequal valves in the fœtal, or very young, state, lose them when they grow up.

Mollia (sect. A. Exanguium) *Androv. de Moll.* 1618; not *Eichw.*
Mollusca seu Mollia (genus Exanguium) *Jonston, de Exang.* 1650.
Malacoderma *Rondel. Exang.*
Mollusca (ordo Vermium) *Linn. S. N.* ed. 10. 641. 652. 1758, ed. 12.; *Müller, Z. Dam. Prod.* 28. 1776; *Brug. E. M.* 1789.
Mollusca *Poli, Test. Sicul.* i. 25. 1791 (exclus. *Cirripodes*); *Cuvier, Tab. Elém.* 1798, *Anat. Comp.* 1800, *Règ. Anim.* ii. 1817, ed. 2. 1830 (excl. Cirrhopoda); *Lamck. Syst.* 50. 1801, *Phil. Zool.* i. 315. 1809; *Schwieger, Naturg.* 187. 612. 689. 1820.
Mollusca pars (Testacea) *Swainson, Malac.* 4, 5. 1840.
Mollusca and Conchifera *Lamck. Hist.* vi. 259. 1819.
Molluscitæ *Schloth. Petref.* 45. 1820.
Therozoa *Eichwald, Zool. Special.* i. 258. 1829.
Pænulata *Latr.*
Gangliata (Mollusca) *Fleming, Brit. Anim.* 224. 1828.

Ganglioneura *Rudolphi, Beitr. z. Anthrop.* 1812.
Malacosia *Rafinesque, Anal. Nat.* 40. 1815.
Apalosia *Rafinesque, Préc. Som.* 12. 1814.; *Anal. Nat.* 137. 1815.
Brachiopneusta *Fischer.*
Malacozoa (Les Malacozoaires) *Blainv. Journ. Phys.* 1816; *Man. Malac.* 362. 1825; *Bronn, Gesch. de Nat.* iii. 1847.
Malacozoaria *Blainv. Dict. Sci. Nat.* xxxii. 171. 1824.
Gasterozoa *Carus, Ueber Thierr.* 1826; *Oken, His.* 1828.
Dermatozoa *Fitzinger, Syst. Rept.* 8. 1843.
Mollusques or Malacozoaires *Blainv. Bull. Soc. Philom.* 1816, 12. 2.
Mollusca or Cyclogangliata *Grant, Outlines, Lectures*, 1833, 17.

Synopsis of the Classes.

A. *Animal crawling on a Foot placed under the Body.*—Pedifera.

I. Gasteropoda (*Gasteropodes*). Head distinct, furnished with eyes and tentacles, and usually protected by one large conical valve, the other being rudimentary or abortive.

II. Conchifera (*Conchifers*). Mouth placed between the gills; they and the body being enclosed between the two large leaves of the mantle, which are covered with two equal or subequal valves, united along the back by a cartilage.

B. *Animal destitute of a Foot, or with only a rudimentary one.*—Apoda.

III. Brachiopoda (*Brachiopodes*). Mouth placed at the base of two spirally twisted ciliated arms, between the two leaves of the mantle, which are covered with two separate shelly valves. They live attached to other marine bodies.

IV. Pteropoda (*Pteropodes*). Head prominent, with one or two pairs of fins on the side of the neck, by which they move about in the ocean. Body often covered with a thin, glossy, conoidal shell.

V. Cephalopoda (*Cephalopodes*). Head large, distinct, furnished with eight or ten or more arms, by means of which they head downwards.

CATALOGUE

OF

CEPHALOPODA.

Class IV. CEPHALOPODA.

Head large, separate from the body. Eyes large, complex, lateral. Ears developed. Mouth armed with two horny or shelly jaws, edged with fleshy lips, and surrounded by eight or ten fleshy arms, or numerous tentacles; and furnished with an entire or slit tube, or *siphuncle*, used in locomotion.

Body ovate, roundish, or cylindrical, open in front, containing the viscera and one or two pair of internal symmetrical gills; naked; surrounded by a thin shell, with a single cavity? or partly or entirely contained in last chamber of a chambered shell, furnished with a siphon passing from chamber to chamber.

Individual unisexual.

Animal free, walking on its head or swimming in the sea; propelled by the water from the siphon tube.

The water of respiration enters the large aperture in the front of the body, and is expelled through the siphuncle, carrying with it the fæces. The large nervous ganglion is contained in a cartilaginous case, sending fibres to all parts of the body.

Cephalopoda *Cuvier*, *Tab. Elém.* 1798, *Anat. Comp.* 1800, *Règne Anim.* 1817; *Férussac*, *Tab. Syst.* 18. 1819; *Lamck. Phil. Zool.* i. 322. 1809, *Ext. d. Cour.* 1812; *De Haan*, *Monog.* 1825; *Grant*, *Lect.* 1833; *D'Orbigny*, *Moll. Viv. et Fos.* i. 107. 1845; *Gray*, *Proc. Zool. Soc.* 1847, 264.; *Owen*, *Trans. Zool. Soc.* ii. 103. 1838.

Pterygiorum *Latr. Fam. Nat.* 153. 1825.

M. brachiata (pars) *Poli*, *Test. Sicil.*

Cryptodibranchiata *Blainv. Dict. Sci. Nat.* xxxii. 172. 1824; *Man. Malac.* 364. 1825.

Cryptodibranchia or Brachiocephala *Blainv.* 1814; *Dict. Sci. Nat.* xii. 88. 1818; *Menke, Syn.*
Antliobranchiophora *Gray, Lond. Med. Rep.* 1821.
Mollia *Eichwald.*
Cephadelia Cephalopodia *Rafin. Anal. Nat.* 138. 1815.

Synopsis of Orders.

Subclass I. *Antepedia.* — Body naked. Shell none, or internal. Head separate, with eight or ten fleshy arms furnished with cups. Gills two. Siphuncle entire. Foot none.

Order I. Octopia.
Arms eight; Cups sessile, without any horny ring. No internal medial dorsal Shell. Eyes fixed in the skin.

Order II. Sephinia.
Arms ten, two longer; Cups peduncled, with a horny circle. Internal medial Shell. Eyes free in the orbit.

Subclass II. *Polarnaxia.* — Body without fins, enclosed in the last chamber of a siphoned-chambered external shell. Head not separate from the body, with a great number of cylindrical annulated retractile tentacles, without cups. Gills four. Siphuncle slit. Foot-like appendage distinct.

Order III. Nautilia.

Subclass I. *Antepedia.*

Body naked. — *Shell* none, or internal. — *Foot* none.
Head separate, with eight or ten fleshy arms furnished with cups. — *Gills* two. — *Siphuncle* entire.

Cephalopoda nuda *Cuvier, Anat. Comp.* 1800; *Lamck. Ext. d. Cour.* 1812; *Schwieger, Naturg.* 1820.
Cephalopoda (testa nulla) *Lamck. Phil. Zool.* i. 322. 1809.
Cephalopoda libera *De Haan, Mon. Amm.* 1825.
Cephalopoda cryptodibranchia *D'Orb. Ann. Sci. Nat.* vii. 96. 1826; *Menke, Syn.* 1. 1828, ed. 2. 1. 1830; *Grant, Lect.* 1833.
Mol. Cephalorum natantium Sepiadæ *Flem. Brit. Anim.* 225. 1828.
Cephalopoda acetabulifera *Férus. & D'Orb. Hist. d. Céphal.* 1834; *D'Orb. Moll. Viv. et Fos.* i. 157. 1845.
Cryptodibranchia nuda *Blainv.* 1814; *Dict. Sci. Nat.* xii. 88. 1818.
Cryptodibranchiata *Blainv. Dict. Sci. Nat.* xxxii. 172. 1824.
Cephalopoda *Leach, Zool. Misc.* iii. 1817.

Cephalopoda dibranchia *Owen*, *Trans. Zool. Soc.* ii. 103. 1838.
C. dibranchiata *Gray*, *Proc. Zool. Soc.* 1847, 204.
Antliobrachiaphora, Anosteophora, et Sepiaphora *Gray*, *Lond. Med. Rep.* 1821.
C. antepedia *Rafin. Anal. Nat.* 139. 1815.

Order I. OCTOPIA.

Body short, rounded, united to the head by a broad cervical band. Sometimes ? covered with a thin single-chambered shell.
Head very large, with aquiferous opening; none on the gills or lips. Siphuncle without any internal valve. Eyes fixed, united to the skins, incapable of rotation. Buccal membrane none.
Arms eight, all sessile, without swimming membranes. Cups sessile, flat, and without any horny ring. Tentacular arms none.
No internal medial dorsal shell.
The front of the mantle is supported by a fleshy band or by fleshy buttons on the siphon (*apparatus of resistance*, D'Orb.), fitting into grooves on the inner side of the mantle.

Cephalopoda octopoda *Leach*, *Zool. Misc.* iii. 1817; *Férussac*, *Tab. Syst.* 18. 1821; *Gray*, *Proc. Zool. Soc.* 1847, 204.; *Latr. Fam. Nat.* 167. 1828.
Antliobrachiaphora, Anosteophora, *Gray*, *Lond. Med. Rep.* 1821.
Cryptodibranchiata octocera *Blainv. Dict. Sci. Nat.* xxxii. 1824; *Menke*, *Syn.* ed. 2. 1830.
Cephalopoda octopodæ *Menke*, *Syn.* 1. 1828.
C. octopoda *Gravenhorst*, *Thier.* 1845.
Octopodidæ *Gray*, *Proc. Zool. Soc.* 1847, 204.; *Cantr. Malac. Médit.* 13. 1841.
C. octopia and argonautea *Rafin. Anal. Nat.* 140. 1815.
C. octobrachides *Blainv.*
C. octoceres *Blainv.*

Synopsis of Families.

I. *Octopidæ*. Arms subulate. Mantle supported by fleshy bands. No cephalic aquiferous apertures.

II. *Philonexidæ*. Arms subulate. Mantle supported by two buttons at the base of the siphuncle, fitting into grooves on the mantle.

III. *Ocythoidæ*. Arms subulate, two upper palmate. Mantle supported by two buttons fitting into grooves on the base of the siphuncle.

Fam. I. OCTOPIDÆ.

Body united to the head in front by a medial fleshy band.
Head without any aquiferous opening. Arms conical, tapering, with short sessile cups. No external nor internal medial shell.
Living near the shores amongst rocks.

Acochlides *Latr. Fam. Nat.* 168. 1828.
Octopidæ *D'Orb. Moll. Viv. et Fos.* i. 159. 164. 1845.
Octopodina *Gray*, *Proc. Zool. Soc.* 1847, 205.

Synopsis of the Genera.

1. Octopus. Arms with two rows of cups. Body round, without fins. No aquiferous Cells between the bases of the arms.
2. Cistopus. Arms with two rows of cups. Body round, without fins. Distinct aquiferous Cells between the bases of the arms.
3. Pinnotopus. Arms with two rows of cups. Body with fins.
4. Eledone. Arms with one row of cups; without beards, and united by a short web. Body round.
5. Cirroteuthis. Arms with one row of cups, bearded, and united by a broad web. Body finned.

A. *Arms with two Rows of Cups.*

1. OCTOPUS.

Body small, round, without any lateral fins, often cirrose. Cirri often nearly disappearing in repose, and when preserved in spirits. — *Head* with two small internal cartilages, one on each side of the beak; in the direction of the body (not oblique), narrower than the body. Eyes small, lateral, covered by the continuation of the surrounding skin, and often by one or two transparent eyelids. Beak very much compressed. External ear slightly marked above the cervical band. No aquiferous cells between the bases of the arms. — *Arms* unequal, elongate, united at the base by a web, which is wider beneath. Cups sessile, two-rowed, flat. — *Siphuncle* elongate, conical, slender, without any superior bands, or valve. — Living on rocks on the coast, very agile, eating crustacea, and changing their colour rapidly. Egg transparent, in bunches attached to *Algæ*.

Πολυπους *Aristoteles.*
Polypus *Plinius*, *Belon*, *Rodeletius.*

Sepia sp. *Linnæus*, *Gmelin*, 1797.
Octopus *Cuvier*, *Règ. Anim.* ii. 1817; *Lamarck*, 1799; *Blainville*, *Malac.* 1825; *D'Orb. Moll. Viv. et Fos.* i. 163. t. 1.
Polypus *Leach*, *Zool. Misc.* 1817.

The species are generally uniformly coloured or mottled. *O. horridus* n. 12. and *O. lunulatus* n. 16. are marked with distinct spots. *O. membranaceus* n. 22. and *O. ocellatus* n. 26. have a large eyed spot between the bases of the lateral arms.

M. D'Orbigny divides the species thus: —

a. Upper Arms the longest.—O. Cuvieri, O. indicus, O. breviceps
b. Lateral Arms the longest.—O. vulgaris, O. tuberculatus, O. brevitentaculatus, O. superciliosus, O. tetracirrhus, O. membranaceus.
c. Lower Arms the longest.—O. rugosus, O. aculeatus, O. lunulatus, O. Fontainianus, O. tchuelchus, O. horridus, O. aranea.
d. Doubtful Species.—O. venustus, O. didynamus, O. Peronii, O. granosus, O. sinensis, O. tetradynamus, O. Boscii, O. pilosus, O. heteropodus, O. areolatus, O. frayedus, O. cærulescens, O. Tang Siao.
e. Apocryphal Species.—O. colossus.

Synopsis of the Sections of the Genus.

§ The Cups of the Arms subequal, regular.
* The lower Cups far apart, in one series.
† Body smooth, bearded.
†† Body smooth, not bearded.
††† Back slightly granular.
†††† Back granular, rough.
** The lower Cups rather crowded.
† Body smooth, not bearded.
†† Body bearded.
††† Body minutely granular.
†††† Body granular, rough.

2 § The Cups of the dorsal Pair of Arms largest.

3 § The seventh to the twentieth Cups of the lateral (second and third) Pairs of Arms much larger than the rest.

4 § Cups ending in a Point, not clawed.

5 § Species requiring further Examination.

6 § Apocryphal species.

§ *The Cups of the Arms equal, similar.*

* *The lower Cups far apart, one-rowed.*

† *Body smooth, bearded.*

1. Octopus vulgaris.

Body small, oval, warty, cirrose; dorsal beards placed in a rhomb. Head warty; ocular beards three. Arms very large, elongate, unequal, the order of their length being 3, 2, 4, 1. Cups far apart, large, near the mouth one-rowed. Web large.—Reddish, whitish beneath.

Πολυπους *Aristoteles*, lib. iv. cap. i.; *Camus*, p. 177.; *Schneid.* ii. p. 130. 15.

Polypus *Salvianus de Aquatil.* 160.; *Gesner de Aquatil.* lib. iv. 870.

Polypus marinus, seu Octopus Karakatiza *Kölreuter*, *Nov. Comm. Acad. Petrop.* vii. 321. t. 11. f. 1, 2.

Polypus octopodia *Leach*, *Journ. de Phys.* lxxxvi. 394.; *Savigny*, *Desc. de l'Egypt. Hist. Nat.* ii. t. 1. f. 1.

Octopodia *Hasselquist*, *Acta Upsal.* 33. 1750.

Octopus vulgaris *Lamck. Mém. de la Soc. d'Hist. Nat. de Paris*, i. 18., *Hist. An. sans Vert.* 2nd edit. vii. 657. n. 1.; *Carus*, *Icon. Sep.* in *Nov. Act. Acad. Nat. Cur.* xii. 1. part. xxxi. 319.; *D'Orbigny*, *Tab. des Céph.* 52. p. 1.; *Blainville*, *Dict. des Sci. Nat.* xliii. 188.; *Risso*, *Hist. Nat. del Eur. Mer.* iv. 3. p. 2.; *Blainville*, *Faun. Franç. Moll.* 5. t. 1. f. 1.?; *Payraudeau*, *Catal.* 172. n. 350.?; *Audouin*, *Expl. des Planch. de Sav.* texte i. 9. in 8vo p. 22.; *Delle Chiaje*, *Mem.* iv. 40. and 55. t. 56. f. 13.; *Wagner*, *Zeitschr. für die Org. Phys.* ii. 22.; *Bull. Univ. des Sc. Nat.* xix. 387.; *Sangiovani*, *Ann. des Sc. Nat.* xvi. 321.; *Philippi*, *Enum. Moll. Sic.* 240. n. 1.; *Rang*, *Mag. de Zool.* 62.?; *Règne An. de Cuv. Ill.* t. 1.; *D'Orbigny et Férussac*, *Mon. des Céph. Acét. Poulpes*, t. 2, 3. 3 bis, 8. 11, 12, 13, 14, 15, 29. p. 27.; *D'Orbigny*, *Moll. des Canaries*, 14. n. 1., *Moll. des Antilles*, 11. t. 1., *Moll. Viv. et Fos.* i. 168. n. 1. t. 1. f. 7—9.; *Potiez et Michaud*, *Gall. des Moll. de Douai*, i. 6. n. 1.; *Bouch. Chant. Cat. des Moll. Mar.* 69. n. 122.

Sepia Octopus *Bosc*, *Buff. de Deterville*, *Vers.* i. 47.

Poulpe commun *Montfort*, *Buff. de Sonnini Moll.* ii. 103. t. 22. 24.? and 113. t. 23, 24, 25.?; *Shaw*, *Natur. Miscell.* xviii. 780.

Poulpe fraisé *Montfort*, *Buff. de Sonnini*, iii. 5. t. 27. 28.

Le Poulpe *Cuvier*, *Mém. sur les Céph.* t. 1—4.

Octopus appendiculatus *Blainville*, *Dict. des Sc. Nat.* xliii. 188.

Octopus Salutii *Verany*, *Mem. del Acad. Torino*, i. t. 3.

Octopus unicirrhus *Delle Chiaje, D'Orb. et Féruss. Mém. des Céph. Acét.* 73.

Hab. Atlantic Ocean, Mediterranean, Indian Ocean, Red Sea.

a. Yarmouth. Adult. In spirits.

†† *Body smooth, not bearded.*

2. Octopus Ægina.

Body oblong, elongated, smooth, marbled, not bearded. Nape, eyes, and back of head smooth. Eyes very prominent. Arms rather elongate; proportionate length, 4, 3, 2, 1. Web short, rather wider below, smooth above. Cups rather large and rather far apart, equal; the five or six lower ones far apart, and in a single series.

Hab. ————.

a. ———— ? In spirits ————.

3. Octopus aranea.

Body oblong, short, smooth. Head short, narrow, very smooth; ocular beards one, posterior. Arms much elongated, smooth, slender very unequal; order of their length, 4, 3, 2, 1. Cups small, close, numerous; about 180 on the longest arms; the four nearest the mouth in a single line. Web short.—In spirit blackish, colouring dots very small.

Octopus aranea *D'Orb. Poulpes*, t. 5. 1825; *D'Orb. et Féruss. Mém. des Céph. Acét.* 57., *Poulpes*, t. 5.; *D'Orb. Moll. Viv. et Fos.* i. 184. p. 23.

Octopus filamentosus *Blainv. Dict. des Sc. Nat.* xliii. 188. 1826.

Hab. Isle of France.

††† *Back slightly granular.*

4. Octopus Geryonea.

Body (in spirits) marbled, smooth. Head and base of the arms very minutely granular. Eyes with one fleshy tubercle, and one behind the eye; upper eyelid rugose. Arms moderate, very thick at the base; proportionate length, 3, 4, 2, 1. Web broad, upper surface finely granulated. Cups large, subequal; the three or four lowest rather distant, and one-rowed.

Hab. Coast of Brazils.

a. Bahia. In spirits.

5. Octopus Hardwickei.

Body roundish, oblong. Middle of the back, back of the head, and the eyelids warty. Ocular tentacles none; eyelid smooth. Arms moderate, rather slender; proportionate length, 4, 3, 2, 1. Cups rather large; the five or six lowest rather far apart, one-rowed. Web rather broad, quite smooth above.

Octopus Hardwickei *Gray*, *Brit. Mus.* 1826.

Hab. Indian Ocean.

a, *b*. Singapore? In spirits. Captain Hay's Collection.

†††† *Body granular.*

6. Octopus rugosus.

Body oval, purse-shaped, large, with a deep groove above. Head and arms and upper part of body covered with roundish tubercles, not bearded. Head short, warty; ocular beard one, elongated. Arms short, thick, conical; the order of the length is 4, 3, 2, 1. Cups large, of upper part of arm rather smaller, lowest one-rowed. Web short.—When alive, violet-brown, white beneath: side of the arms netted with brown lines.

Polypus mas *Seba*, *Thes.* iii. t. 2. f. 2, 3 ?, 1758.
Octopus *Barker*, *Phil. Trans.* l. 777. t. 29. f. 1—4.; *Bruguière*, *Encyc. Méth.* t. 76. f. 1, 2.; *Shaw*, *Miscell.* x. 359.
Le Poulpe granuleux *Montfort*, *Buff. de Sonnini Moll.* iii. 30. t. 29.
Le Poulpe Américain de Barker *Montfort*, *Buff. de Sonn.* iii. 38. t. 30. 1802.
Sepia rugosa *Bosc*, *Act. de la Soc. d'Hist. Nat.* t. 5. f. 1, 2. 1792.
Sepia granulosa *Bosc*, *Buff. de Deterville Vers.* i. 47. 1802.
Octopus granulatus *Lamarck*, *Mém. de la Soc. d'Hist. Nat. de Paris*, i. 20. p. 2. 1799; *Hist. An. s. Vert.* vii. 658.; *Férussac*, *D'Orb. Tab. des Céphal.* 53. n. 2.; *Blainv. Dict. des Sc. Nat.* xliii. 185.; *Philippi*, *Enum. Sicil.* 241. n. 3.
Octopus Barkerii *Férussac*, *D'Orb. Tab. des Céph.* 54. n. 3. 1826.
Octopus americanus *Blainv. Dict. des Sc. Nat.* xliii. 189. 1826.
Octopus rugosus *Blainv. Dict. Sc. Nat.* xliii. 185. 1826; *D'Orbigny et Férussac*, *Mém. des Céphal. Acét.* 45., *Poulpes*, t. 6. p. 23.; *D'Orbigny*, *Moll. des Antilles*, i. 18., *Moll. Viv. et Fos.* i. 171. n. 3.

Hab. Atlantic Ocean, Indian Ocean.

a. Valparaiso. In spirits. Mr. Bridges's Collection. The fourth, or lower, pair of arms rather shorter than the third pair.

** *Lower Cups crowded.*

† *Body smooth, not bearded.*

7. Octopus Favonia.

Body (in spirits) oblong, smooth, without any beards. Eyes without beards. Arms moderate, conical; relative length, 3, 2, 1, 4. Webs moderate, with hard transparent granulations above, especially between the dorsal arms. Cups similar, subequal, large; the two or three lowest one-rowed.

O. Indicus *Gray*, *Brit. Mus.* 1830; not D'Orb.

Hab. Indian Ocean.

a. Singapore. In spirits. Presented by General Hardwicke.

8. Octopus Eudora.

Body smooth. Ocular tentacles none. Arms rather short, subquadrangular, not fringed on the outer edge; relative length, 2, 3, 4, 1; three upper pairs subequal. Web short, rather broader below. Cups moderate, subequal, regular; one or two lowest near mouth one-rowed.

Hab. Atlantic Ocean.

a, *b*. Jamaica. In spirits. Mr. Gosse's Collection.

9. Octopus Tchuelchus.

Body round, short, smooth. Head smooth. Arms elongated, compressed, nearly equal; the order of their length, 4, 1, 3, 2. Cups about a hundred on the longest arms. Web thin. Siphuncle elongate, narrow. — When alive blackish brown, whitish beneath

Octopus Tchuelchus *D'Orb. Voy. dans l'Amér. Mér.* v., *Moll.* 27. t. 1. f. 6, 7. 1835; *D'Orb. et Féruss. Mém. des Céph. Acétab.* 55., *Poulpes*, t. 17., *Moll. Viv. et Fos.* i. 172. n. 4.

Hab. Atlantic Ocean, Patagonia. *D'Orb.*

10. Octopus Cassiopea.

Body (in spirits) smooth, oblong, moderately long. Ocular beard one, conical, medial, posterior. Arms moderate, rather thick at the base; proportionate length, 2, 3, 4, 1. Web short, rather broader beneath, smooth above. Cups moderate, subequal; of the third pair of arms rather the largest.

Hab. Mediterranean.

a. Marseilles. In spirits. Presented by J. Ritchie, Esq.

11. Octopus brevipes.

Body oblong, large, smooth. Head short, broad. Eyes prominent, without eyelids. Arms conical, very short, nearly equal, about one third the length of the animal; upper pair rather longest. — Bluish, with red spots. Eyes silvery, with a blue spot above them. Perhaps young. *D'Orb.*

Octopus brevipes *D'Orbigny, Voy. dans l'Amér. Mér. Moll.* 22. t. 1. f. 1—3.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 61., *Poulpes*, t. 17. f. 1.; *D'Orbigny, Moll. Viv. et Fos.* i. 174. n. 6.

Hab. Atlantic Ocean.

†† *Body bearded.*

12. Octopus horridus.

Body short, smooth, round, with numerous regularly placed diverging beards. Head short, with diverging beards round the eyes. Arms short, thick, five or six bearded externally, nearly equal, conico-subulate; order of length, 4, 3, 2, 1. Cups rather large, subequal; one or two lowest, especially of the second pair of dorsal arms, one-rowed. Web moderate, extending up the outer edge of the arms. — Bluish? when alive, with large regular round white spots (seen also when in spirits).

Octopus horridus *D'Orbigny, Sav. Descr. de l'Egypte, Atlas, Céphal.* t. 1. f. 2.; *D'Orbigny, Tab. des Céph.* 54. n. 4.; *Audouin, Explicat. des Planches de Sav.* 3. p. 2.; *Ehrenberg, Cephalopoda, Octopus*, n. 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 51., *Poulpes*, t. 7. f. 3.; *D'Orbigny, Moll. Viv. et Fos.* i. 178. n. 15.

O. fimbriatus *Rüppell, MS.* (in Brit. Mus.); *D'Orb. et Férussac, Céph. Acét.* 64., *Moll. Viv. et Fos.* i. 179. n. 16.

O. Argus *Krauss, Sud-Afr. Moll.* 132. t. 6. f. 28.

Hab. Red Sea.

a. Red Sea. In spirits. From Dr. Edward Rüppell's Collection, as "O. fimbriatus *Rüppell.*"

13. Octopus aculeatus.

Body short, rounded, small, covered near the head with numerous beards. Head longly bearded; beards crowded, forming a circle round the eyes. Arms thick, elongated, bearded externally, unequal; order of length, 4, 2, 3, 1. Cups very large and very numerous. Web short. — When alive, whitish.

Octopus aculeatus *D'Orb. Tab. des Céph. Poulpes*, t. 7. 1823; *D'Orb. et Férussac, Mon. des Céph. Acét.* 53., *Poulpes*, t. 7, 8. 23.; *D'Orb. Moll. Viv. et Fos.* i. 183. n. 21.

Octopus niveus *Féruss. D'Orb. Tab. Méthod. des Céph.* 54. 1826; *Lesson, Voy. de la Coquille, Zool.* ii. part 1. 239. t. 1. f. 1. 1 bis.

Hab. Manilla and Borapora.

††† *Body minutely granular.*

14. Octopus Saphenia.

Body and arms minutely granular. Ocular beards none. Arms moderate; comparative length, 2, 3, 4, 1; three upper pairs subequal. Web short, granular above. Cups subequal.

Hab. Pacific Ocean.

a. East coast of South America. In spirits. Presented by the Rev. W. Hennah.

15. Octopus Berenice.

Body (in spirits) oblong. Head and base of the arms and back of the body minutely granular, and with regularly disposed roundish groups of small granules. Eyes with four or five granulated tubercles on the dorsal edges, forming a fringe. Arms moderate; relative length, 2, 3, 4, 1. Cups very large, subequal. Web moderate, rather wider below.

Hab. ————

a. ————? In spirits. Presented by Mr. John Leadbeater, 1805.

16. Octopus lunulatus.

Body short, covered with scattered tubercles, and about twenty rounded prominent circles with concave centres, in six series. Head short, thick, tubercular, with one medial and two lateral convex circles, with a tubercle in the centre. Arms short, conical, nearly equal; order of their length, 4, 3, 2, 1; with a circle between the bases of the arms. Cups about fifty. Web very short. — When alive, white, varied with blue circular spots paler in the centre.

Octopus lunulatus *Quoy & Gaimard, Zool. du Voy. de l'Ast.* ii. 86. t. 6. f. 1, 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 59. *Poulpes*, t. 10. 26.; *D'Orbigny, Moll. Viv. et Fos.* i. 182. n. 20.

Hab. New Zealand.

17. Octopus tetracirrhus.

Body oval, slightly granular, with a posterior beard. Ocular cirrhi two, anterior and posterior. Arms short, rather unequal in length; in order, 2, 3, 1, 4. Web very broad. Cups in two lines; the first three round the mouth in one line. — Yellowish when alive.

Octopus tetracirrhus *Delle Chiaje Moll. MS.; D'Orbigny et Férussac, Mon. des Céph. Acét.* 36. n. 5., *Poulpes*, t. 22.; *D'Orbigny, Moll. Viv. et Fos.* i. 175. n. 8.

Hab. Mediterranean.

18. Octopus superciliosus.

Body oval, acuminated behind, slightly granular, longly bearded; one beard being posterior, seven or eight on the back, and some in two lines on the sides, forming a kind of crest which is sometimes indistinct. Head very distinct, swollen, smooth in the middle, with some tubercles over the eyes. Arms elongated, angular, conical, nearly equal; order of their length, 2, 4, 3, 1. Cups far apart, large; beak without lateral wings.—When alive, white.

Octopus superciliosus *Quoy & Gaim. Zool. du Voy. de l'Ast.* ii. 28. t. 6. f. 4. 1832; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 41., *Poulpes*, t. 10. 28.; *D'Orbigny, Moll. Viv. et Fos.* i. 180. n. 18.

Hab. Bass's Straits, Australia.

†††† *Body granular, rough.*

19. Octopus Boscii.

Body roundish; back of head and arms closely acutely granulated; back with a few regularly placed larger tubercles. Eyes with three conical beards. Arms elongate, granulated, without any beards externally; the upper pair with a very wide dorsal membrane, the other with a narrow one arising from the outer side. Cups in two regular marginal series. Web moderate, granulated above.

Sepia rugosa *Péron, MS.*

Octopus Boscii *LeSueur, Journ. Acad. Nat. Sci. Philad.* ii. 101. 1822.; *D'Orb. et Férussac, Mon. des Céph. Acét.* 68.; *D'Orbigny, Moll. Viv. et Fos.* i. 186. n. 26.

Octopus variolatus *Péron, Blainv. Dict. Sc. Nat.* xliii. 186. 1826.

Hab. New Holland.

a. New Holland.? In spirits. Presented by J. B. Jukes, Esq.

20. Octopus tuberculatus.

Body short, round, covered with irregular papillary granular warts; back with four conical, acute, diverging beards. Head short, warty; ocular beards two, the hinder elongated. Arms granular, cirrose, short, unequal; the order in length of the arms is

2, 3, 4, 1, or 3, 2, 4, 1. Cups very large, the first three in one line. Web rather wide, granulated above, extending up the outer side of the arms, especially of the second and third pairs. —Violet brown, beneath white.

Octopus tuberculatus *Blainville*, *Dict. des Sc. Nat.* 1826, p. 6. t. 1. f. 3.; *Faun. Franç. Moll.* 8. t. 1. f. 3.; *D'Orbigny et Férussac*, *Mon. des Céph. Acét.* 38., *Poulpes*, t. 21. 23. p. 38.; *D'Orbigny*, *Moll. des Antilles*, 15. n. 2., *Moll. Viv. et Fos.* i. 170. t. 1.

Octopus ruber *Rafinesque*, *Précis des Découv. Somiol.* 28. n. 70.?

Hab. Atlantic Ocean, Mediterranean.

a. Pacific Ocean. In spirits. ——————— ?

21. Octopus polyzenia.

Body oblong, rounded, short. Head, back of the dorsal arms, and back of body granular, and with a few scattered warts or short beards. Arms slender, outer edge of ventral arms smooth; comparative length, 4, 3, 2, 1. Web short, rather wider below. Cups large, subequal.

Hab. Australian seas.

a. Port Essington. In spirits. Presented by the Earl of Derby.

22. Octopus membranaceus.

Body obtuse, granular, provided with a lateral membrane. Head large; ocular beards three, elongate, granular above and below. Arms short, unequal, quadrangular; order of their length, 2, 3, 4, 1. Cups large. Web short, granular.—When alive, white, with a black eyed spot between the bases of the second and third pairs of arms.

Octopus membranaceus *Quoy & Gaim. Zool. de Voy. de l'Ast.* ii. 89. t. 6. f. 5.; *D'Orbigny et Férussac*, *Mon. des Céph. Acét.* 43. *Poulpes*, t. 10. 28.; *D'Orbigny*, *Moll Viv. et Fos.* i. 181. n. 19.

Hab. New Guinea.

2 § *Cups of the dorsal Pair of Arms larger than the rest.*

23. Octopus Cuvieri.

Body oblong, enlarged below, warty above, and with a medial posterior beard; aperture of moderate size. Ocular beards indistinct. Arms very long, slender, unequal; order of length, 1, 2, 3, 4; first and third much longest. Web broad. Cups elevated. some on the two upper pair of arms larger.

Octopus Cuvieri *D'Orb. Tab. des Céph. Poulpes*, t. 4. 1835, *Moll. des Canaries*, 16. n. 2., *Moll. Viv. et Fos.* i. 173. n. 5.; *D'Orb. et Féruss. Mon. des Céph. Acét. Poulpes*, t. 1. 4. 24. 27. p. 18.; *Guérin, Icon. de Règ. Anim. Moll.* t. 1. f. 1.

Octopus Lechenaultii *D'Orb. Tab. des Céph. Poulpes*, t. 1. 1825.

Octopus macropus *Risso, Hist. Nat. del Eur. Merid.* iv. 3. n. 3. 1826; *Delle Chiaje, Mem.* iv. 40. 56. p. 2. t. 54. p. 26. 1828; *Blainv. Faun. Franç. Moll.* 6. n. 2.; *Wagner, Zeitschr. für die Organ. physik.* ii. 225.; *Bullet. des Sc. Nat.* xix. 387. n. 1.; *Rang, Mag. de Zool.* 61. t. 90.; *Philippi, Enum. Moll. Sic.* 240. n. 2.

Octopus macropodus *Sangiovani, Ann. Sc. Nat.* xvi. 319. 1829; *Bullet. des Sc. Nat.* xx. 338.

Octopus longimanus *Féruss. MS.*

Hab. Atlantic Ocean, Mediterranean, Indian Ocean, Red Sea.

24. Octopus medoria.

Body, head, and base of arms minutely granular, with scattered rather larger rounded tubercles. Body oblong, rather acute behind. Eyes large; ocular tentacles none. Arms elongate, slender; comparative length, 1, 3, 4, 2. Cups rather small, regular, equal, of the dorsal pair rather largest. Web moderate, scarcely wider beneath, smooth above.

Hab. ——— ?

a. ——— ? In spirits. The left dorsal arm not fully developed, and with small cups like the other arms. Somewhat like *O. Cuvieri* Féruss. *Céphal.* t. 4.

3 § *A Few of the Cups near the Base of the second and third Pairs of Arms much larger than the rest.*

25. Octopus Fontanianus.

Body large, oval, slightly warty; aperture broad. Head narrow, nearly smooth; ocular beards one, posterior. Arms moderate size, angular, subequal; the inferior pair longest. Cups close together, subequal, gradually diminishing in size; the seventh to the tenth cups of the second and third pairs of arms much largest. Web very broad.—When alive, violet, deeper above.

Sepia Octopus *Molina, Hist. Nat. du Chili*, p. 173.?

Octopus Fontanianus *D'Orbigny, Voy. dans l'Amér. Mérid. Moll.* 28. t. 2. f. 5.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 49., *Poulpes*, t. 28, 29.; *D'Orbigny, Moll. Viv. et Fos.* i. 179. n. 17.

Hab. Pacific Ocean, coasts of Chili and Peru.

26. Octopus ocellatus.

Body roundish, oblong; back of head and outside of the arms regularly granular; eyes and head without any cirri; beneath smoothish, sides rounded. Arms moderate, unequal. The fourth or fifth cups of the second and third pairs of arms much larger than the rest. — A large black eyed spot between the bases of the second and third pairs of arms.

Octopus ocellatus *D'Orb. & Férussac, Mém. Céph. Acét. Poulpes*, t. 9. upper figure, from Chinese drawing.

Hab. Chinese seas.

a. China. In spirits. Presented by John Reeves, Esq.

27. Octopus Cephea.

Body (in spirits) smooth, oblong, rather elongate. Head smooth; ocular beard small, surrounded by other smaller beards. Arms thick, moderately long; proportionate length, 3, 2, 4, 1. Web broad, broader in front, upper surface quite smooth. Cups very large; the tenth to the twentieth cups of the second and third pairs of arms larger, equal; the four or five lowest of all the arms one-rowed.

Hab. ————————.

a. ————————. In spirits. ————————

Very like *O. vulgaris*, but differs in the size of the cups on the lateral arms.

28. Octopus Cyanea.

Body (in spirits) ovate, above rather granular, beneath smooth. Ocular tubercle rugose, superior. Arms rather elongate, conical; order of length, 2, 4, 3, 1. Cups large; the tenth to the twentieth of the second and third pairs of arms larger, equal-sized; the lowest, especially of the ventral arms, one-rowed. Web broad, minutely granular above, especially between the upper arms.

Hab. Australian seas.

a. Coast of New Holland. In spirits. Presented by J. B. Jukes, Esq.

b.? ———————— ? In spirits ?

4 § "*Cups ending in a Point, not clawed.*"

29. Octopus cærulescens.

Body short. Arms much longer than the body. Cups ending in a point, but not clawed.— Blue, varied with very small close purple dots. Cups whitish. *Blainv.*

Octopus cærulescens *Péron, Blainv. Dict. des Sc. Nat.* xlii. 129. 1826; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 65.; *D'Orbigny, Moll. Viv. et Fos.* i. 185. n. 24.

Hab. New Holland, Island of Dorre. *Péron.*

The form of the cups, if correct, would indicate a different family.

5 § *Species requiring further Examination.*

30. Octopus longipes.

Body elongated, oval, glabrous, grey spotted with black. Arms very long, slender. Cups large, rather prominent.

Octopus longipes *Leach, Zool. Miscell.* iii. 137. 1817; *Férussac, D'Orb. Tab. des Céph. Ann. Sc. Nat.* 54. n. 6.; *Blainville, Dict. des Sc. Nat.* xliii. 189.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 67., *Moll. Viv. et Fos.* i. 187. n. 31.

Polypus longipes *Leach, Journ. de Phys.* lxxxvi. 394. 1818.

Hab. ————? Mus. Oxford. Probably *O. Cuvieri* or *O. aranea* D'Orbigny.

31. Octopus brevitentaculatus.

Body (in spirits) short, globular, smooth, not tubercled. Arms thick, cirrous, conical, short; proportion of length, 2, 3, 4, 1; the longest only three times as long as the head. Cups large.

Octopus brevitentaculatus *Blainv. Dict. Sc. Nat.* xliii. 187.; *D'Orbigny, Mon. des Céph. Acét.* 36. n. 4., *Moll. Viv. et Fos.* i. 186. n. 30.

O. vulgaris contracted *D'Orb. Moll. Viv. et Fos.* i. 187.

Hab. ————. Mus. Paris, three specimens.

32. Octopus venustus.

Body oval, purse-formed, smooth; aperture large. Head short, rather broad; eyes prominent. Arms rather short, nearly equal. Cups small. *Rang.*

Octopus venustus *Rang, Moll. MSS.; D'Orbigny et Férussac, Mém. des Céph. Acét.* 64., *Poulpes*, t. 21. f. 8, 9. 1838; *D'Orbigny, Moll. Viv. et Fos.* i. 175. n. 7.

Hab. Atlantic Ocean, Goree.

"Perhaps from a young specimen." *D'Orbigny.*

33. Octopus granosus.

Body small, globular, rather transverse, finely granulated above and below. Arms eight times as long as the body; proportionate length, 4, 3, 2, 1. Web slight.

Octopus granosus *Blainv. Dict. des Sc. Nat.* xliii. 186.; *Faune Française, Moll.* 7. t. 1, 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 63.; *D'Orbigny, Moll. Viv. et Fos.* i. 176. n. 9.

Hab. Mediterranean, Sicily. *Blainville.*

34. Octopus pilosus.

Body round, grey, ashy-brown, provided above with reddish hairs disposed in bundles. Arms very short, thick. Cups large. Eyes very large and very prominent.

Octopus pilosus *Risso, Hist. Nat. del Eur. Merid.* iv. 4. n. 5. 1826; *Blainville, Faun. Franç. Moll.* 7. n. 3.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 67.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 10.

Hab. Mediterranean, Nice.—*Risso.*

A very doubtful species. *D'Orb.*

35. Octopus frayedus.

Arms equal, six times as long as the body, without any cups at the end.

Octopus frayedus *Rafinesque, Précis de Découv. Somiol.* 1814; *Blainville, Dict. des Sc. Nat.* 1826, p. 189.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* p. 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 11.

Hab. Mediterranean. *Rafinesque.*

36. Octopus didynamus.

Arms unequal, the upper pair longest, nearly five times as long as the body.

Octopus didynamus *Rafinesque, Précis de Découv. Somiol.; Blainville, Dict. d'Hist. Nat.* xliii. 190.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 12.

Hab. Mediterranean. *Rafinesque.*

37. Octopus tetradynamus.

Arms unequal, alternately longest, about five times as long as the body.—Grey.

Octopus tetradynamus *Rafinesque, Précis des Découv. Somiol.* 1814; *Blainville, Dict. des Sc. Nat.* xliii. 190.; *D'Orbigny et Férussac. Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 13.

Hab. Mediterranean.

38. Octopus heteropodus.

Arms unequal, very short, scarcely as long as the body; the upper pair longest. Back reddish.

Octopus heteropodus *Rafinesque, Précis de Découv. Somiol.; Blainville, Dict. des Sc. Nat.* xliii. 190.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 178. n. 14.

Hab. Mediterranean.

39. Octopus areolatus.

Like *O. Cuvieri;* but the body areolated on the surface, with a dark spot in each areole.

Octopus areolatus *De Haan, MSS. Lettre de* 1835; *D'Orb. et Férussac, Mon. des Céph. Acét.* 65.; *D'Orb. Moll. Viv. et Fos.* i. 186. n. 27.

Hab. Coast of Japan. *De Haan.*

40. Octopus Peronii.

Body rugose. Arms thicker and shorter than those of *O. variolatus*, and with larger and fewer cups. Brownish green.

Sepia Octopoda *Péron, MSS.*
Sepia Peronii *LeSueur, Journ. Acad Nat. Sc. Philad.* ii. 101. 1822.
Octopus Peronii *Féruss. D'Orb. Tab. Class. des Céph.* 54. n. 7. 1823; *D'Orbigny, Moll. Viv. et Fos.* i. 185. n. 25.
Octopus pustulosus *Péron, Blainv. Dict. Sc. Nat.* xliii. 186. 1826; *D'Orb. et Féruss. Mon. des Céph. Acét.* 66.

Hab. New Holland, Isle Dorre.

41. Octopus Fang Siao.

Wangtchao-iu *Encyclopéd. Japonnaise*, lib. 51; *D'Orbigny.*
Octopus Fang-siao *D'Orb. et Féruss. Mon. des Céph. Acét.* 70. *D'Orbigny, Moll. Viv. et Fos.* i. 186. n. 28.

Hab. Coast of Japan.

42. Octopus sinensis.

A large species.

Octopus sinensis *D'Orb. et Féruss. Mon. des Céph. Acét.* 68., *Poulpes*, t. 9. lower figure, *Moll. Viv. et Fos.* i. 186. n. 29.; from *Récueil de Poissons, de Moll. et Crust. grav. et enlum. au Japon, avec les noms Chinois et Japonnais*, folios 36 and 37.; *Encyclopéd. Japonnaise*, liv. 51. fol. 17. verso, *Pen-thsao-kang-mo*, 1593, art. *Tchang-iu.*

Hab. Coast of Japan.

43. Octopus Carena.

Octopus Carena *Verany*, *Mem. Acad. Torino*, i. t. 2., *Cat. Anim. Invert. Genova*, 17.

Hab. Genoa.

44. Octopus Koellikeri.

Body short, oblong. Arms subulate, slightly webbed at the base; two lower pairs subequal, very short; upper pair rather longer than the second pair.

Octopus Koellikeri *Verany*, *Cephal. ex Sicil.* ii. t. 1. f. 1. not described.

Hab. Sicily. Perhaps a *Philonexis.*

45. Octopus cocco.

Body conical. Arms moderate, subequal. Superocular beard one, small.

Octopus cocco *Verany*, *Congresso di Napoli*, *Col. Anim. Invert. Genova*, 17. 29. t. 4. f. 1. 1846.

Hab. Genoa.

6 § *Apocryphal Species.*

46. Octopus colossus.

Poulpe colossal *Montfort*, *Buff. de Sonnini*, *Mollusques*, ii. 256. t. 26.

Sepia gigas *Oken*, *Lehrb. des Zool.* 345. n. 7.; *D'Orbigny et Férussac*, *Mon. des Céph. Acét.* 70.; *D'Orb. Moll. Viv. et Fos.* i. 187.

Poulpe Kraken *Montfort*, *Buff. de Sonnini*, *Moll.* ii. 386.; *D'Orbigny*, *Moll. Viv. et Fos.* i. 188.

2. CISTOPUS.

Body small, round, without any lateral fins.—*Head* in the direction of the body. Eyes lateral, covered by the skin. External ear indistinct. A small aquiferous system, consisting of a bag with a small pore at the outer edge, situated between the bases of the arms.— *Arms* unequal, elongate, united at the base by a web wider beneath. Cups sessile, two-rowed, flat.— *Siphuncle* conical.—Living on rocky coasts.

Octopus sp. *Gray, B. M.; Rüpp. MSS.; D'Orb. Moll. Viv. et Fos.* i. 183., *Céphal. Acét.* 24.

1. Cistopus Indicus.

Body smooth, pouch-shaped, not bearded. Arms rather elongated, unequal; order of their length, 1, 2, 3, 4; web very broad. Cups large; two or three near the base of the dorsal pair of arms largest.

Octopus indicus *Rüpp. MSS.*; *D'Orb. et Férussac, Mon. des Céph. Acét.* 24., *Poulpes*, t. 25, 26. f. 1—4.; *D'Orbigny, Moll. Viv. et Fos.* i. 183. n. 22.

Hab. Island of Celebes.

a. India. In spirits. Presented by General T. Hardwicke.

3. PINNOCTOPUS.

Body oblong, with broad, lateral, wing-like expansions, which extend in front, and enfold all the body.—*Head* indistinct, narrower than the body. Eyes lateral, dorsal.—*Arms* very long, with two rows of scarcely prominent cups, and with a broad web at the base.

Pinnoctopus *D'Orb. Moll. Viv. et Fos.* i. 193. t. 2.
Octopus sp. *Quoy & Gaim. Voy. Astrol.* 1832.

1. Pinnoctopus cordiformis.

Body orbicular, tubercular, winged. Arms long, nearly equal length, the lateral ones shortest. Eyes rather prominent.—Red-brown, arms with pale-blue lunules.

Octopus cordiformis *Quoy & Gaim. Zool. du Voy. Astrol.* ii. 27. t. 6. f. 2.; *D'Orb. et Féruss. Mon. de Céph. Acét.* 62., *Poulpes*, t. 10. f. 1.
Pinnoctopus cordiformis *D'Orb. Moll. Viv. et Fos.* i. 193. t. 2.

Hab. New Zealand. Only known from M. Quoy's figures.

4. ELEDONE.

Body small, oblong, without fins, rounded behind. Aperture narrow. Ventral part of mantle united to the head by a central fleshy band; nuchal band broad.—*Head* straight, indistinct, narrower than the body. Eyes small, lateral, dorsal, prominent, covered by the continuation of the skin. Beak compressed. Ears slightly marked.—*Arms* long, tapering, webbed at the base. Cups sessile, rather cylindrical, in a single line.—*Siphuncle* elongate, conical, without superior bands or valve.—Emitting a musky smell, and living in rocky places.

Ελεδωνη *Aristot.*; Bolitænæ and Ozolis *of the Ancients.*
Eledone *Aldrovandus*, *De Moll.* cap. 3. 1606; *Leach*, *Zool. Misc.* 1817, iii. 137.; *Schweig. Natgsch* 758. 1820; *Rang*, *Man.* 87. 1829.
Eledon *Cuvier*, *Règne Anim.* 1817, ed. 2. 1830; *Desh.* in *Lamck. Hist.* xi. 234.; *Pot. et Mich. Zool.* i. 7. 1838; *Verany.*
Eledona *Risso*, *Eur. Merid.* iv. 2. 1826.
Polypus *Rondelet.*, *Gesner*; *Owen*, *Trans. Zool. Soc.* 1838; *Oken*, *Isis*, 1838, 836.
Sepia sp. *Linnæus.*
Octopus sp. *Lamarck.*
Ozaina *Plin.*
Heledone *Menke*, *Cat.* ed. 2. 1830.
Moschites *Schneider*, *Samml. Verm. Abhandl.* 1835. See *Féruss. Bul. Sci. Nat.* 1835-36.
Ozæna *Rafin. Anal. Nat.* 129. 1815; *Montfort.*
" Ozœma *Rafinesque.*"
Eledonæ (fam.) *Risso*, *Eur. Merid.* iv. 2. 1826.

* *Ocular Beards two. Central Arms equal.*

1. Eledone moschatus.

Body oblong, acuminated behind, smooth, when excited bearded, granular. Ocular cirri elongated, central. Arms long, slender, compressed, equal. Cups far apart.—Colour very variable, with three blackish spots in a horseshoe. Web edged with blue.

Ελεδωνη *Aristot.* lib. iv. cap. 1.; *Camus*, p. 117.; *Schneider*, ii. 130.
Ozaina *Plin. Hist. Nat.* lib. ix. cap. 30.
Eledona *Belon*, *De Aquatil.* 333., *La Nat. et Divers. de Pois.* 337.
Polypi tertia species *Rondelet. de Piscib.* lib. xvii. cap. 8. 516. cap. 9. (1st species) 417.
Polypus tertia species *Bossuet*, *De Aquat.* lib. iv. 740. 871.
Polypus femina *Seba*, *Mus.* 3. f. 2. 6. 4.

Poulpe musqué *Montfort*, iii. 80. t. 34. 1802; *Cuvier*, *Règne Anim.* iii. 12.
Eledona, Bolitæna, Ozolis. *Aldrovand. De Moll.* cap. 3. 42, 43.
Moschites *Schneider*, *Collect. de div. Dissert.*
Poulpe d'Aldrovande *Montf. Sonn. Moll.* iii. 55. t. 32. 1802.
Octopus moschatus *Lamck. Mém. Soc. Hist. Nat.* i. 22. n. 4. t. 2. 1799; *Hist. An. s. Vert.* vii. 658. n. 4.; *Blainville*, *Dict. Sc. Nat.* xliii. 190.; *Payradeau*, *Cat. Coq. Corse*, 172. n. 349.; *Sangiovani*, *Ann. Sc. Nat.* xvi. 317.; *Blainville*, *Faun. Franç.* 9. n. 7.; *Philippi*, *Enum. Moll. Sic.* 241.; *Rang*, *Mag. de Zool.* 64. t. 91.
Sepia moschata *Bosc*, *Buff. de Deterv. Vers.* i. 48. 1802.
Ozæna moschata *Rafinesque*, *Précis de Découv. Somiol.* 29. n. 72. 1814.
Ozæna Aldrovandi *Rafinesque*, *Précis de Découv. Somiol.* 29. n. 73. 1814.
Eledone moschata *Leach*, *Journ. de Phys.* lxxxvi. 293. 1817; *Cuvier*, *Règne An. Ill.* t.; *D'Orb. et Féruss. Mon. Céph. Acét.* 72. t. 1. 1 bis, 3.; *Potiez et Michaud*, *Gal. de Douai*, i. 7. n. 1.; *D'Orb. Moll. Viv. et Fos.* i. 196. t. 3.
Eledon moschatus *Féruss. D'Orb. Tab. des Céph.* 55. n. 1.; *Delle Chiaje*, *Mem.* iv. 48. 56.
Eledon moschata *Ranzani*, *Mem. di Stor. Nat.* dec. 3. 151. 1819.
Eledona moschata *Risso*, *Hist. Nat. Eur. Merid.* iv. 2. 1826.
Octopus moschites *Carus*, *Nov. Act. Acad. Nat. Cur.* xii. 1st part, 319. t. 32. 1824.
Eledon Aldrovandi *Delle Chiaje*, *Mem.* iv. 43. 67. 1828, "imaginary," *D'Orb.*
Octopus leucoderma *Sangiov. Ann. Sc. Nat.* xvi. 318. 1829.
Eledone Genei *Verany*, *Acad. Reale delle Sc.* i. 1838 (the young), *Congress de Torino*, *Cat. Anim. Invert. Genova*, 17. 29. n. 55. 1846; *Shaw*, *Nat. Miscell.* t. 359.; *Barbut*, *Genera Verm.* 75. t. 8. f. 1.

Hab. Mediterranean.

** *Ocular Beards none. Arms unequal.*

2. Eledone octopodia.

Body rounded, very minutely granular, dilated behind. No ocular cirrhi. Arms of moderate length, conico-subulate, granular, unequal; order of length, 1, 3, 2, 4. Cups close together. —Pale black, brown-spotted.

Sepia octopodia *Pennant*, *Brit. Zool.* iv. 53. t. 28. f. 44.
Sepia moschites *Herbst. Einleit. zur*, *&c.* 80. n. 5. t. 389.
Sepia cirrhosa *Bosc*, *Buff. de Deterv. Vers.* i. 47.

Poulpe cirrheux *Montfort*, *Buff. de Sonnin. Moll.* iii. 67. t. 33.
Octopus cirrhosus *Lamck. Mém. Soc. Hist. Nat. Paris*, i. 21. n. 3. t. 1. f. 2. a, b.; *Férussac*, *D'Orb. Tab. Méthod. Céph.* 56. n. 2.; *Blainville*, *Dict. Sc. Nat.* xlvii. 191.
Octopus ventricosus *Grant*, *Edin. New Phil. Journ.* 1827, p. 309.; *Bullet.* (*Féruss.* xii. 397. 1827.)
Eledone cirrhosus *D'Orb. et Féruss. Mon. Céph. Acét. Eledons*, t. 2.; *D'Orb. Moll. Viv. et Fos.* i. 194.

Hab. Coast of Britain and Europe.

23. *a.* Berwick on Tweed. In spirits. Presented by G. Johnston, M.D.
b. Dalmatia. In spirits. Purchased of Dr. Heckel.

5. CIRROTEUTHIS.

Body round. Fins oblong, transverse, dorsal. Aperture very small, inferior.—*Head* small; cervical band occupying three fourths of the circumference. Eyes small, lateral ventral, without eyelids.—*Arms* equal, conical, subulate, united together by a thin funnel-shaped web, which is immediately attached to the arms at the base (as high as the fifth cup) and at the tip, but in the middle is united to the back of the arm by a thin skin, forming a kind of pouch. Cups in a single row, alternating with fleshy beards.—*Siphuncle* moderately long.

Cirroteuthis *Eschrich. Nov. Act. Nat. Cur.* xviii. 625. (1836, 1838); *Desh. Lamck. Hist.* ed. 2. xi. 234. 1845.
Cirrhoteuthis *Moller*, *Ind. Moll. Groen.* 4.; *Koryer*, *Naturk. Tidsk.* iii. 98. iv. 77.; *D'Orb. Moll. Viv. et Fos.* i. 198. 1845; *Gray*, *Proc. Zool. Soc.* 1847, 205. n. 795. (not Chiroteuthis *D'Orb.*)
Sciadephorus *Reinh. & Prosch*, *Kong. Dansk. v. Selsk. Naturv.* xii. 1846.
Sciadophorus. 1847, misprint, see *Herrmann*, 442.
Bostrychoteuthis *Agassiz*, *Nomenclat*, 87.

1. Cirroteuthis Mulleri.

Body smooth, oblong, three-lobed. Fins longer than broad, blunt, depressed. Eyes very small. Arms equal, quadrangular. Cups very small, oval, about thirty; beards between the cups filiform.—Violet.

Cirroteuthis Mulleri *Eschrich. Nov. Act. Phys. Med. Acad. Cæs. Leop. Nat. Cur.* xviii. part 2. 625. t. 46, 47, 48.; *Desh. Lamck. Hist.* xi. 234.
Cirrhoteuthis Mulleri *D'Orbigny*, *Moll. Viv. et Fos.* i. 198. t. 4.; *Moller*, *Ind. Moll. Groenl.* 4.

Sciadephorus Mulleri *Reinh. & Prosch Kong. Dansk. v Selsk. Naturv.* xii. t. 1, 2. 1846.

Hab. Coast of Greenland.

Fam. II. PHILONEXIDÆ.

Body oblong. The ventral portion of the mantle free, supported by a button on to the lower part of the siphuncle, fitting into a transverse cavity in the inner surface of the mantle. Ventral opening very large, extending on the sides of the neck. Cervical band narrow.

Head moderate. Eyes large, prominent, without any beards. External ear without any crest, on the side of the neck, behind the eyes, and above the cervical band. Aquatic pores, two, four, or six; two on the head above, two anal below, or two on each side, and sometimes some small ones at the base of the head, which is enclosed in the mantle; the larger cephalic and anal pore communicating with a large cavity placed under the head, and passing above the eyes; sometimes this cavity is separated into two by a medial line.

Arms elongate, tapering, not crested, simple at the end. Cups fleshy, pedunculated, very extensible, subcylindrical, in two rows, sometimes far apart.

Siphuncle broad, short, without any upper band or internal valve.

Shell none, neither internal nor external.

Pelagian, living on the high seas. Crepuscular or nocturnal, eating floating mollusca.

Philonexidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 199. 1845.
Philonexiana *Gray*, *Proc. Zool. Soc.* 1847.

Synopsis of Genera.

1. Philonexis. Arms free.
2. Tremoctopus. Arms, upper pair webbed.

1. PHILONEXIS.

Arms free, tapering, unequal.—Nocturnal. Above the eyes blue.

Philonexis *D'Orb. Céph. Acét.* 1839, *Moll. Cuba*, i. 7. 21. 1841, *Voy. Amér. Mérid.* 1835, *Ann. Sci. Nat.* xvi. 1841.
Philonexis (pars) *D'Orb. Moll. Viv. et Fos.* i. 200. 1845; *Gray*, *Proc. Zool. Soc.* 1847, 205. n. 797.
Philonexus *D'Orb. Gray*, *Syn. B.M.* 87. 98. 1842.
Octopus sp. *Blainv. Férussac.*

* *Two upper Pairs of Arms longest, free ; lower very small.*

1. Philonexis atlanticus.

Body smooth, roundish, large. Head of moderate size, smooth. Eyes prominent, large, without eyelids. Water-bearing apertures two above. Arms slender, unequal; in order, 1, 2, 4, 3; not webbed, except at the base. Cups peduncled.—White, spotted with red.

Octopus (Philonexis) atlanticus *D'Orb. Voy. Amér. Mérid. Moll.* 19. t. 11. f. 1—4. 1835.

Philonexis atlanticus *D'Orb. Mon. Céph. Acét.* 98., *Poulpes*, t. 16. f. 4, 5. 1838, *Moll. Viv. et Fos.* i. 203. 1845.

P. Quoyianus, jun. ? *D'Orb.* l. c. 203.

Hab. Atlantic Ocean, under the tropics.

** *The upper Pair of Arms very long, free ; rest short.*

2. Philonexis Eglais.

Body ovate, large; skin thick, dilated, and covered all over with small rounded peduncled horny buttons which are divided into five or six equal regular lobes round a common centre. Head very small. Eyes prominent. Arms very unequal, and two upper arms very long ; order of length, 1, 2, 3, 4 ; inferior very short.—White ; back red spotted, above the eyes blue.

Octopus (Philonexis) Eglais *D'Orb. Voy. Amér. Mérid. Moll.* 20. t. 1. f. 18. 14. 1835.

Philonexis Eglais *D'Orb. Mon. Céph. Acét.* 102., *Poulpes*, t. 17. f. 4, 5. 1838, *Moll. Viv. et Fos.* i. 204. 1845.

Hab. North Atlantic Ocean.

3. Philonexis microstomus.

Body rounded, large, smooth, reddish. Head broad. Eyes very large, prominent. Arms smooth, short, very unequal, not webbed ; order of length, 1, 2, 4, 3 ; upper three times as long as lower.

Octopus microstomus *Regnaud, Mag. de Zool.* 23. 1834.

Philonexis microstomus *D'Orb. Mon. Céph. Acét.* 101., *Poulpes*, t. 10. f. 5. 1838, *Moll. Viv. et Fos.* i. 204. 1845.

P. atlanticus, jun. ? *D'Orb.* l. c. 205.

Hab. North Atlantic Ocean.

*** *The upper Arms longest; rest gradually shorter, to the lowest.*

4. Philonexis hyalinus.

Body short, broad, smooth, oval, larger before than behind; aperture very large; diaphanous, whitish, marked with red. Head short. Eyes large, prominent, subpedunculated. Arms unequal, not webbed, as long as the body; order of length, 1, 2, 3, 4; upper much longer than the lower.

Octopus hyalinus *Rang*, *Féruss. et D'Orb. Mon. Céph. Cryptod. Poulpes*, t. 16. f. 1. 1835; *Rang*, *Mag. de Zool.* 1837, cl. v. 66. t. 92. 1837.

Philonexis hyalinus *D'Orb. Mon. Céph. Acét.* 104., *Poulpes*, t. 16. f. 113. 1838, *Moll. Viv. et Fos.* i. 205. 1845.

Hab. Atlantic Ocean.

**** *The Arms very long, free, very slender. Cups far apart.*

5. Philonexis tuberculatus.

Body oval, pointed behind, very large, smooth above; beneath covered with small, short, horny tubercles, united by netted ridges; aperture very large. Head short, not very distinct; water-bearing apertures four, two above and two below. Arms slender, elongate, nearly equal; comparative length, 1, 4, 2, 3; scarcely webbed. Cups distant, united in each line by an intermediate membrane. Siphuncle very large, larger than the head.—Brown, silvery beneath; arm bluish.

Octopus tuberculatus *Risso*, *Hist. Nat. Eur. Merid.* iv. 3. n. 4. 1826; *Delle Chiaje*, *Mem.* iv. 55, 56. t. 55. n. 3. 1832 *Mém. sur l'Aplysia*, p. 68. note.

Octopus reticularis *Petagna*, *Rappelle delle Sc. di Napoli*, 1826 (1828).

Octopus catenulatus *Férussac*, *Poulpes*, t. 6. 6*. 6**. 1828.

Octopus Verany *Wagner*, *Zeitschr. für die Org. Phys.* ii. 1828, *Bullet. Univ. des Sc. Nat.* xix. 388. n. 3.

Polpo di Férussac *Delle Chiaje*, *Mem.* iv. 41. 1829.

Octopus pictus *Blainv. Faun. Franç. Moll.* 8. n. 6. from Risso.

Philonexis tuberculatus *D'Orb. Mon. des Céph. Acét.* 87., *Poulpes*, t. 6. 6*. t. 23. 1838, *Moll. Viv. et Fos.* i. 206. t. 5. f. 2—6. 1845.

Hab. Mediterranean.

6. Philonexis Alcæus.

Body smooth above and below; brown spotted. Arms elongate, slender, free; the upper and lower pairs very long; the two lateral pairs much shorter. Cups far apart.

Perhaps young of former, no appearance of tubercles beneath, both surfaces alike.

a, *b*. South of Europe. In spirits. Presented by P. B. Webb, Esq.

2. TREMOCTOPUS.

Arms moderate, triangular, upper surface flat, with two series of subcylindrical sessile cups; two upper pair longest, and webbed nearly to the tip. Aquiferous openings four; two above between the eyes, and two below, and sometimes six smaller on each side.

Tremoctopus *Delle Chiaje*, *MS.* 1835, quoted by D'Orbigny; *Verany*, *Cat. Anim. Invert.* 1848.
Tremectopus *Gray*, *Proc. Zool. Soc.* 1847, 205. n. 793. misprint.
Philonexis sp. *D'Orb. Céphal. Acét.* 1838, *Moll. Viv. et Fos.* i. 205.
Ocythoe sp. *Risso*, *Eur. Merid.* iv.
Octopus sp. *Férussac*, *Rang.*
Phisoniscus *Rüppell*, *MS. Brit. Mus.*

* *Webs moderate. Lower Arms shorter, free. Head large.*

1. Tremoctopus Quoyanus.

Body smooth, oblong, large, pointed behind; white, marked with red. Head large, smooth. Eyes large, prominent, without eyelids, blue above. Water apertures four; two above between the eyes, and two below. Arms elongated, unequal; order of length, 1, 2, 4, 3; two dorsal pair longest, and webbed together half their length.

Octopus (Philonexis) Quoyanus *D'Orb. Voy. dans l'Amér. Mérid. Moll.* 17. t. 2. f. 6—8. 1835, *Mag. de Zool.* 1835, 141.
Philonexis Quoyanus *D'Orb. Mon. Céph. Acét.* 96., *Poulpes*, t. 16. f. 68. 23. 1838, *Moll. Viv. et Fos.* i. 202. t. 5. f. 1. 1845.
Octopus semipalmatus *Owen*, *Trans. Zool. Soc.* ii. t. 21. f. 12, 13. 1836.

Hab. Middle of South Atlantic Ocean.

** *Arms all webbed. Head moderate, with several small ocular aquiferous Apertures.*

2. Tremoctopus violaceus.

Body rather ovoid, truncated anteriorly, nearly smooth, violet. Head short. Aquiferous apertures four, large; two above and two below; and six small ones near each eye. Arms elongated; order

of length, 2, 1, 3, 4; two dorsal pairs flattened, and webbed to the tip.

Octopus velifer *Féruss. Poulpes*, t. 18, 19. 1830; *Verany, Cat.* 1829.

Tremoctopus violaceus *Delle Chiaje, MS.* 1835; *Verany, Cat.* 1829.

Octopus violaceus *Féruss. Poulpes*, t. 20. from Chiaje.

Octopus velatus *Rang, Mag. de Zool.* p. 60. 1837.

Philonexis velifer *D'Orb. Mon. Céph. Acét.* 91., *Poulpes*, 18, 19, 20. 23. 29. 1838, *Moll. Viv. et Fos.* i. 205. t. 5. f. 7. 1845.

Phisoniscus velatus *Rüppell, MS. Brit. Mus.*

Ocythoe mygaro *Risso, Eur. Merid.*

Hab. Mediterranean.

a. Messina. Adult. In spirits. Dr. Rüppell's Collection.

Fam. III. OCYTHOIDÆ (ARGONAUTIDÆ?).

Body ovoid, enlarged in front, smooth, covered with a thin skin marked with chromatic glands. Ventral aperture extending to under the eyes. Cervical band moderate. Ventral part of the mantle supported by an elevated button on the inner side near the margin, fitting into a notch at the base of the siphuncle.

Head oblique, short above and long below. Eyes lateral, very large, ovate, prominent, covered on the upper edge with a very thin eyelid. Beak broad, not compressed. Ear small, behind the eye, under the cervical band and lateral aquiferous opening. Aquiferous openings one pair at the upper hinder angle of the eye.

Arms tapering, very unequal; the dorsal pair bent back on themselves and furnished with a membrane, the lower pair with a broad membranous exterior keel, the lateral pairs depressed. Cups in two series, prominent, as if slightly pediceled.

Siphuncle very large, conical, attached by two exterior lateral and two other medial very thin bands.

? *Shell* (Argonauta) exterior, one-celled, thin, brittle, transparent, horny, calcareous, slightly flexible when wet; nucleus hemispherical, very large.

The female *Ocythoes* are often found in the shell of the *Argonaut*, and have hence been supposed to form these shells, and as yet no other animal has been found inhabiting them; but there are several reasons for believing that the *Ocythoe* is only a parasite adapted by its form to live in such shells, as the web of the arms is used by the animal to embrace the shell and keep it in its right

position on the body. Unlike all other Mollusca, which form the shell they inhabit: First, the *Ocythoe* is not attached to the shell by any muscle, nor has it any muscle, like the bone-bearing cuttle-fish, formed for the purpose of attaching the body to an internal shell. Secondly, the animal, when alive, does not fit the shell; so that the shell cannot have been moulded on its body, as in other Mollusca. Thirdly, the skin of the *Ocythoe* is of the same texture and appearance as in the other naked *Cephalopoda;* and the presence of sand between the shell and the body appears to cause no uneasiness to the animal, as it does in all other shell-bearing Mollusca, where the animal immediately rids itself of the irritation so caused by covering the sand, &c., with a calcareous coat. The animals found in these shells are always female, and the apex of the shell is filled with very small eggs; while from the large size of the young shell, which is seen on the apex of the true Argonaut, we should expect the animal which formed that shell to have a large egg; for, though the eggs of Mollusca are enlarged during the hatching, they are not, in any case I have observed, so much enlarged as to have such a shell.

It is supposed by those who believe that the shell belongs to the *Ocythoe*, that it is formed and mended when broken by the expanded ends of the upper arms, which embrace the outer surface of the shell, and keep it on the body of the animal.

Cranch and Adams, who have seen these animals alive, state that they leave the shell when they are frightened, and they cannot recover their position in the shell after they have thus left it.

Mr. Adams regards the Argonaut shell as a nest formed by the female to contain her eggs; if this is correct, it can scarcely be compared to other shells. He regards them as similar to the cartilaginous cases which Murices and other zoophagous Mollusca form to contain their eggs!; but they have no apparent analogy to those bodies, which are secreted by the oviduct as the eggs are deposited.

These various views show that the origin of the shell is not yet distinctly settled.

Living on the high seas, floating, and feeding on floating Mollusca.

Cephalopoda testacea (pars) *Cuvier*, *Anat. Comp.* 1800.
Cephalopoda testa unilocularia *Lamck. Phil. Zool.* i. 322. 1809.
Ceph. Argonautidæ *Cantraine*, *Mall. Médit* 13. 1841.
Ceph. Argonautica *Gravenhorst*, *Thier.* 1845.
Philonexidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 199. 1845.
C. cymbicochlides (pars) *Latr. Fam. Nat.* 168. 1828.
C. octopia and C. argonautea *Rafin. Anal. Nat.* 1815.
Cephalopodes monothalmes *Lamck. Hist.* ed. 2. 171. 343.
Ocythoina *Gray*, *Proc. Zool. Soc.* 1847. 204.

1. OCYTHOE.

See character of the Family.

Ocythoe *Rafin. Anal. Nat.* 1815; *Leach, Phil. Trans.* 1818; *Blainv. Malac.* 1825.
Octopus ϵ. *Blainville, Malac.* 1825.
Ocytoe *D'Orb. Moll. Viv. et Fos.* p. 223. (misprint ?).
Shell, Argonauta *Linn.*
Nautilus, Nautileus, *Aristoteles.*
Nautilus, Pompilius, *Plinius.*
Cymbium *Gualteri*, 1742.
Argonauta *Linn., Brug., Rafin. Anal. Nat.* 1815; *Risso, Eur. Merid.* 1826; *Lamarck, D'Orb. Moll. Viv. et Fos.* i. 260.

1. Ocythoe tuberculatus.

Animal elongate. Body oblong, smooth. Eyes large, prominent. Arms unequal; in the following order, 1, 4, 2, 3; the dorsal pair elongate; the second and third pairs without any internal groove; the third pair depressed their whole length. Siphuncle united to the base of the arms by a lateral membrane.

Ocythoe tuberculata *Rafinesque, Précis de Découv. Somiol.* 29.
Ocythoe Argos *Deshayes, Enc. Méth.* iii. 643.
Ocythoe antiquorum *Leach, Zool. Miscel.* iii. 139., *Journ. de Phys.* lxxxvi. 394.; *Blainv. Journ. de Phys.* lxxxvi. 360. 434—447.
Ocythoe probatio *Leach, Phil. Trans.*
Octopus antiquorum *Blainv. Dict. Sc. Nat.* xliii. 192. t. 1 bis, f. 1.
Octopus Argonauta *Blainv. Malacol.* 366. t. 1 bis, f. 1.
Octopus tuberculatus *Blainv. Dict. Sc. Nat.* xliii. 196.
? Argonauta compressa *Blainv. Dict. Sc. Nat.* 212.
Argonauta Argo *D'Orb. Paléont. univ.* t. 1, 2. f. 1—5., *Paléont. étrang.* t. 1. t. 2. f. 1—5., *Moll. Viv. et Foss.* i. 226. t. 6 and 7. f. 1—5.

Hab. Mediterranean, Cape of Good Hope, Indian Ocean.

a. Mediterranean. Adult, without shell. In spirits. Presented by Rev. W. Hennah.
b. Mediterranean. Junior, without shell. In spirits. Presented by Rev. W. Hennah.
c. Mediterranean. Adult, without shell. In spirits. Presented by J. Bates, Esq., R. N.
d. Mediterranean. Adult, without shell, with eggs. In spirits. Presented by W. E. Leach, M. D.
"Ocythoe probatio" *Leach.*

e, *f*. Mediterranean. In Argonaut shell, expanded and contracted.

g. Indian Ocean. In Argonaut shell, contracted. Presented by Capt. Sir Edward Belcher, C. B., R. N.

Shell (Argonauta Argo) compressed, transversely ribbed on the sides, adorned with unequal bifurcated ribs. Keels two, approximate, tuberculiferous; tubercles small, very frequent. Aperture compressed, sagittate, truncated in front.

Argonauta Argo *Linn. Syst. Nat.* 10. edit. 708. n. 231., *Mus. Lud. Ul.* 548. n. 148., *Syst. Nat.* 12. ed. 1161. n. 271.; *Born, Ind. Mus. Cæs.* 119. a. 1., *Test.* 140, *Vign.* 139.; *Gmel. Syst. Nat.* 3367.; *Brug. Enc. Méth. Vers.* i. 122.; *Walfen, Nov. Act. Phys. Nat. Cur.* viii. 235.; *Olivi, Zool. Adriat.* 129.; *Schreibers, Conchylien*, i. 1. n. 1.; *Turton, Syst. of Nat.* iv. 304.; *Duvernoy, Dict. Sc. Nat.* iii. 102.; *Fischer, Mus. Demidow*, iii. 245.; *Wood, Zoography*, ii. 579.; *Montfort, Conchyl.* ii. t. 6, 7.; *Oken, Lehrb. der Zool.* ii. 336.; *Brooke's Introd. to Conchol.* 90. t. 5. f. 53.; *Burrow, Elements of Conchol.* 75. t. 12. f. 1.; *Brown, Elements of Conch.* 65. t. 7. f. 18.; *Dillwyn, Descr. Cat.* i. 333.; *Schumacher, Ess. d'un Nouv. Syst.* 268.; *Ranzani, Consid. su i Moll. Cefalop. del Argon* in *Opusc. Scient. et Mem. di Stor. Nat.* dec. 1. p. 85. t. 6. f. 1.; *Lamarck, Anim. s. Vert.* 2d edit. viii. 652. n. 1.; *Sowerby, Genera of Shells*; *Férussac, Dict. Class.* i. 552. n. 2.; *Mawe, Linn. Syst. Conchol.* 79. t. 18. f. 1.; *De Martins, Reize nach Venedig*, ii. 438.; *Wood, Ind. Test.* 62. t. 5. f. 1. 2d edit. t. 13. f. 1.; *D'Orb. Prodr.* 47. n. 1.; *Féruss. Not. sur l'Anim. du Genre Argonaute*, in *Mém. Soc. d'Hist. Nat. Paris*, ii. 160. t. 14.; *Poli, Mem. sul Nautil. o Argon. Arg. l'Antologia*, 58., *Test. utriusq. Sicil.* iii. 1. t. 40. to 43., *Ann. of Philos*, 1825, 152.; *Payradeau, Cat. Moll. Corse*, 172. n. 348.; *Risso, Hist. Nat. Eur. Merid.* iv. 4.; *Blainville, Dict. Sc. Nat.* xliii. 212., *Malacolog.* 494.; *Rapp, Ueber die Naturwiss. Abhand.* i. 67. t. 2. f. 1, 2.; *Mauriani, Giorn. de Fisica*, ix. 390.; *Broderip, Zool. Journ.* iv. 57. and 224. t. 3.; *Costa, Cat. de Test.* n. 1. 61.; *Delle Chiaje, Mem. sul. Stor. Nat.* ii. 219.; *Blanchart, Bullet. Soc. Linn. Bord.* iii. liv. iv. 195.; *Eichwald, Zool. Spec.* ii. 34.; *Guérin, Iconog. Règ. An. Moll.* t. 1. f. 3. a. 6.; *Philippi, Enum. Moll. Sic.* 240.; *Potier et Michaud, Gal. de Douai*, 2. n. 1.; *D'Orbigny, Moll. des Antilles*, i. 24. n. 5.; *Reeve, Conch. Syst.* ii. 305. t. 300.

Nautilus papyraceus *Martini, Conchyl. Cab.* i. 230. t. 17. f. 157.; *Shaw, Nat. Miscell.* iii. t. 101.; *Cubières, Hist. abrég. des Coq.* 43. t. 4. f. 6.

Argonaute papyracé *Bosc, Buff. de Deterv. Coq.* iii. 261. t. 27. f. 6.; *Montfort, Buff. de Sonnini, Moll.* 119. t. 35.

Argonauta corrugata *Humphrey*, *Mus. Calon.* 6. n. 80. 1797.
Argonauta sulcata *Lamarck*, *Syst. An. s. Vert.* 99. 1801.
Argonauta grandiformis *Perry*, *Conchyl.* t. 42. f. 4.
Arg. striata *Perry*, *Conchyl.* t. 42. f. 4.

Hab. Atlantic Ocean, Cape of Good Hope, Amboyna, Mediterranean.

a—j. Shells, different ages. From Mr. Broderip's Collection.
k. Shell. From Mr. Mantell's Collection.
l. Shell. ————————.
m. Shell. Mus. Cracherode.
n, o. Shell. Malta. Presented by Miss E. Attersoll.

2. Ocythoe raricyathus.

Animal elongate. Body acuminated behind, smooth. Arms more webbed below than above, unequal; in the following order, 1, 2, 4, 3; the second and third pairs keeled on the outer side; the third pair depressed.

Octopus raricyathus *Blainville*, *Mém. Journ. Phys.* lxxxvi 393. 1824, *Dict. Sc. Nat.* xliii. 104.
Argonauta nodosa *D'Orb. Moll. Viv. et Fos.* i. 231.

Hab. Cape of Good Hope, India.

Shell (Argonauta nodosa) compressed, thin. Sides with transverse rugæ, which are longitudinally tuberculiferous; tubercles of keels rather eminent, compressed. Aperture compressed externally, having two divaricate ears.

Argonauta Argo *Linnæus*, *Syst. Nat.* edit. 9, 10, 11, 12. 1161. n. 271. part; *Gmelin*, *Lin. Syst. Nat.* var. *b. e.*; *Bruguière*, *Encyc. Méth. Vers*, i. 123. var. B.; *Turton*, *Syst. Nat.* iv. var. 4.
Argonauta nodosa *Solander*, *MS.*, and *Portland Cat.* 76. 2120. 17.; *Humphrey*, *Mus. Calon.* 6. n. 81. 1797; *D'Orbigny*, *Moll. Viv. et Fos.* i. 231.
Nautile papyracé *Favart d'Herbigny*, *Dict.* ii. 425, 426.
Paper Nautilus *Kämmerer*, *Cabin. Rudolst.* 29. var. 6.
Le Nautile à grains de riz *Favanne*, *Conchyl.* i. 714. t. 7. f. A. 7. A. 9. p. 715.
Argonauta oryzata *Museum Geversianum*, 252. n. 133.
Argonaute à grains de riz *Montfort*, *Buff. de Sonnini*, *Moll.* iii. 307. t. 37, 38, 39. f. 1. p. 332. t. 40. p. 364.
Argonaute chiffonné, Argonaute à oreilles, *Sonnini*, *Moll.* iii. 307. t. 39. f. 2.; *Martini*, *Conch. Cab.* i. 221. f. 1. 229. t. 17. f. 156. t. 18. f. 166.
Argonauta navicula *Soland. MS.*, and *Port. Cat.* 42. 1055.
Argonauta vitrea *Perry*, *Conch.* t. 42. f. 1.

Argonauta tuberculata *Shaw, Nat. Misc.* xxiii. t. 995.; *Dillwyn, Descript. Cat.* 334.; *Blainville, Journ. de Phys.* lxxxvi. 445. f. 1. *a, b, c.*; *Wood, Ind. Test.* 62. n. 2. t. 13. f. 2.; *Bowdich, Elements of Conch.* t. 13. f. 4.; *Férussac, Dict. Class.* i. 552. n. 3.; *D'Orbigny, Prodr.* 48. n. 3.; *Eichwald, Zool. Spec.* ii. 34.; *Deshayes, Enc. Méth.* ii. 69.

Argonauta tuberculosa *Schumacher, Ess. d'un Nouv. Syst.* 260.; *Lamarck, An. s. Vert.* 2d edit. vii. 632. p. 2.; *Blainv. Dict. Sc. Nat.* xliii. 212. f. 1. *a, b.*, *Malacolog.* 365. t. 1. f. 1. *a, b.*

Hab. Indian seas.

a, b. Shells. Mr. Broderip's Collection.
c. Shell. New Zealand. Presented by And. Sinclair, M.D., R.N.
d, e. Shells. New Zealand. Presented by Dr. Dieffenbach.
f—h. Shells.
i. Shell. Mus. Cracherode.
k, l. Shells. Mr. Broderip's Collection.
m. Shell. Chiloe. Mr. Broderip's Collection.
n—r. Shells, young.
s. Shell. In spirits. One ear. Mr. Broderip's Collection.

3. Ocythoe Cranchii.

Animal small. Head long. Ventral aperture large. Aquiferous openings two. Arms short, unequal; in the following order, 1, 2, 3, 4; the webbed arms small, thick.

Ocythoe Cranchii *Leach, Journ. Phys.* 1817; *Tuckey, Voy. Congo*, 410. t., *Phil. Trans.* 1817, 296. t. 12.; *Blainv. Journ. Phys.* lxxxvii. 47. t. 86. f. 2. *a, b.*, *Dict. Sci. Nat.* xlii. 195.

Octopus punctatus *Blainv. Dict. Sci. Nat.* xliii. 195.

Argonauta hians *D'Orb. Moll. Viv. et Foss.* i. 232.

Hab. Atlantic Ocean.

a. Coast of Africa. Without shell. In spirits. Presented by J. Cranch, Esq., Congo Expedition.
b. ——— ? With young shell. In spirits.

Shell (Argonauta hyans) compressed, whitish brown, adorned with unequal radiating ribs. Keels remote, margined on each side with thick tubercles. Aperture broad, oblong.

Argonauta Argo *Linn. Syst. Nat.* edit. 9, 10, 11, 12. 1161. n. 271. part; *Born, Test. Mus. Cæs.* 140. var. β.; *Gmel. Syst. Nat.* 3369. var. δ.; *Bruguière, Encycl. Méth. Vers.* i. 123. var. c.; *Turton, Syst. of Nat.* iv. var. 3.

Nautilus papyraceus *Davila, Catal. Syst.* i. 108. n. 87. 2d spec.; *Seba, Thesaur.* iii. t. 84. f. 9—12.; *Menschen, Cat. Mus. Oudan.*

8. n. 49.; *Cat. Mus. Leersian.* 10. n. 66, 67.; *Favart d'Herbigny, Dict.* ii. 426.; *Favanne, Cat. de la Tour d'Auvergne*, 57. n. 248., *Conchyl.* i. 711. t. 7. f. A 6. f. A 3. 713., f. A 10. f. A 1. p. 717.

Argonaute papier brouillard *Montfort, Buff. de Sonnin. Moll.* iii. 358 and 371.

Nautilus tenuis *Martini, Conch. Cab.* i. 235. t. 17. f. 159. 658. et p. 238., vignette, p. 221. f. 2.

Argonauta hyans *Solander, MS.*, and *Portland Cat.* 44. 1055.; *Humphrey, Mus. Calonn.* 6. n. 82.; *Dillwyn, Desc. Cat.* 334. n. 3.; *Férussac, Dict. Class.* i. 553. n. 4.; *D'Orb. Prodr.* 48. n. 5.; *D'Orb. et Féruss. Mon. Céph. Acét. Argonautes*, t. 5.; *D'Orbigny, Paléont. univ.* t. 2. f. 6—10., *Paléont. étrang.* t. 2. f. 6—10., *Moll. Viv. et Fos.* i. 223. t. 7. f. 6—10.; *Adams, Voy. Samarang, Moll.* 4. t. 3. f. 2. *a*, *b*, *c*.

Ocythoe Cranchii *Leach, Phil. Trans.* 1817, 296. t. 12. f. 1—6.

Argonauta Cranchii *Férussac, Dict. Class.* i. 552. n. 1.; *D'Orb. Class. des Céph.* 48. n. 6.

Argonauta haustrum *Dillw. Descr. Cat.* 335.; *Wood, Ind. Test* 62. n. 5.; *Deshayes, Enc. Méth.* ii. 70. n. 3.; *D'Orb. Moll. de l'Am. Mérid.* 12., *Moll. des Canar.* 17. n. 3., *Moll. des Antill.* i. 28. n. 6.

Argonauta gondola *Dillwyn, Desc. Cat.* 335. n. 4.; *Wood, Ind. Test.* 62. n. 4.; *Férussac, Dict. Class.* i. 553. n. 5.; *Mawe, Lin. Syst. Conchol.* 79. t. 18. f. 2.; *Deshayes, Encyc. Méth.* ii. 69. n. 2.; *Adams, Zool. Voy. Sam. Moll.* 3. t. 1. f. 2. *a.*, t. 2. f. 2. *q*, *r*, *s*, *t*.

Argonauta nitida *Lamarck, An. s. Vert.* vii 653. n. 3.; *Blainv. Dict. des Sc. Nat.* xliii. 213.; *Crouch, Conchyl.* 43. t. 20. f. 17.; *Deshayes, Encyc. Méth.* ii. 69.

Argonauta crassicostata *Blainv. Dict. Sci. Nat.* xliii. 213.

Argonauta raricosta *Blainv. Dict. Sc. Nat.* xliii. 213.; *Deshayes, Enc.* ii. 69. n. 1.

Argonauta Owenii *Adams, Zool. Voy. Samarang*, 4. t. 3. f. 1. *a*, *b*, *c*.

Hab. Coast of Africa, China.

a—c. Shells. Mr. Broderip's Collection.
d. Shell. Without ears. Mr. Broderip's Collection.
e. Shell. China. Presented by John Reeves, Esq.
f—j. Shells, young.

Species not sufficiently described.

4. "ARGONAUTA RUFA."

Animal and shell thick, red.

Argonauta rufa *Owen, Trans. Zool. Soc.* ii. 114.

Hab. South Pacific. Capt. P. P. King, R.N.

Order II. SEPHINIA.

Body elongate, oblong, or cylindrical, sometimes without any cervical band. Fins developed, lateral or dorsal, posterior. Mantle supported by a fleshy band, or by cartilaginous buttons and loops.

Head smaller than the body. Eyes free in the orbit, turning in every direction in the very large orbital cavity. Buccal membrane largely developed. Aquiferous apertures on the lips and arms, but none on the head.

Arms ten; eight sessile, often edged with membranes; two tentacular, elongated, coming out between the third and fourth pairs of sessile arms and the lips. Cups oblique, peduncled, strengthened with a horny ring, sometimes formed into a claw.

Siphuncle almost always provided with an internal valve.

Shell internal, longitudinal, occupying and strengthening the middle of the back.

Sepia *Linn. S. N.*

Ceph. antepedia Sephinia *Rafin. Anal. Nat.* 139. 1815.

Cephalopoda decapoda *Leach, Zool. Misc.* iii. 1817; *Férussac, Tabl. Syst.* 18. 1821; *Gray, Proc. Zool. Soc.* 1847, 205.; *Menke, Syn.* i. 1828; *Cantraine, Mal. Médit.* 13. 1841.

Antliobrachiophora Sepiaphora *Gray, Lond. Med. Rep* 1821.

Cryptodibranchiata decacera *Blainv. D. S. N.* xxii. 1824; *Menke, Syn.* ed. 2. 1830.

Cephalopoda decapoda enterostea *Latr. Fam. Nat.* 160. 1825.

Loliginea *Gravenh. Thier.* 34. 1834.

Decabrachides *Blainv.*

Sepiaceæ *Blainv. Dict. Sci. Nat.* xii. 90. 1818; *Ehrenb. Sym. Phys.* 1831.

Sepiadæ *Fleming, Brit. Anim.* 252. 1828.

Sepiæ (les Seiches) *Féruss. Tab. Syst.* 24. 1821.

Sepiæphora *Gray, Lond. Med. Rep.* 1821; *Desh. Ency. Méth.* iii. 946.

Sepiophora *Gray, Mem. B. M.* 92. 1843; *Herrmannsen, Ind.* ii. 442.

Sepialea (pars) (les Sepiales) *Lamck. Phil. Zool.* 1809.

Sepiolea *Lamck. Extrait du Cour.* 1812; *Desh. Ency. Méth.* p. 236. 1830.

Sepiaria (pars) (les Sepiares) *Lamck. Hist.* vii. 654. 1822.

Sepiina *Macgillivray, Moll. Aberd.* 22. 1843.

Sepiidæ *Cantrain. Malac. Méd.* 13. 1841; *Leach, Zool. Misc.* iii. 138. 1817.

M. D'Orbigny separates this order into two suborders (*Moll. Cuba*, i. 7. 1841) thus:

i. *Myopsidæ* Eyes covered with the skin, without immediate contact with the water: this will contain *Cranchiadæ*, *Sepiadæ*, *Spirulidæ*, and *Loligidæ*.

ii. *Oigopsidæ*. Eyes open externally, in immediate contact with the water: *Loligopsidæ*, *Chiroteuthidæ*, *Onychoteuthidæ*, and *Belemnitidæ*.

Synopsis of Families.

A. *Shell solid, horny.*—CHONDROPHORA.

A. *Mantle supported by two internal fleshy Bands.* (Allied to Octopidæ.)

I. *CRANCHIADÆ*. Eyes covered with the skin. Siphuncle with a valve.

II. *LOLIGOPSIDÆ*. Eyes naked. Siphuncle simple.

B. *Mantle furnished with three internal Cartilages; one dorsal, two ventral.*

III. *CHIROTEUTHIDÆ*. Eyes naked, simple above. Siphuncle simple.

IV. *ONYCHOTEUTHIDÆ*. Eyes naked, with a sinus above. Siphuncle with a valve.

V. *LOLIGIDÆ*. Eyes covered with skin, simple.

B. *Shell cellular, calcareous. Mantle with two cartilaginous Ridges on ventral side.*—SEPIAPHORA.

VI. *SEPIADÆ*. Eyes covered with skin. Head united to mantle by a broad cervical band.

C. *Shell chambered, siphoned, calcareous or horny.*—BELEMNOPHORA.

VII. *SPIRULIDÆ*. Shell spiral, whorls separate.

VIII. *BELEMNITIDÆ*. Shell straight.

Suborder I. *CHONDROPHORA.*

Shell internal, solid, horny or cartilaginous, either lanceolate, pennate, with a central longitudinal dorsal ridge above, and a groove beneath, sometimes thick on each side near the edges; or flat, narrow, with a narrow central longitudinal solid rib, and a similar rib on each edge. The apex solid, sometimes thickened, produced, and cartilaginous.

Teuthomorpha (pars) *Bronn, Gesch. der Nat.* 538. 1847.

Sect. I.—Ventral side of mantle supported by two internal fleshy bands. 1. Cranchiadæ. 2. Loligopsidæ.

Sect. II.—Ventral side of mantle free, with two internal cartilaginous ridges. 3. Chiroteuthidæ. 4. Onychoteuthidæ. 5. Loligidæ.

A. *Mantle supported by two internal fleshy Bands on the ventral Side. Body soft, semitransparent, elongate. Fins posterior, dorsal.*

Fam. I. CRANCHIADÆ.

Body large, membraneous, ventricose, rounded behind, narrowed and truncated in front. Fins terminal, affixed to a special prolongation of the body, oval, separated by a nick behind; united to the head by a narrow cervical band, and below by a fleshy band on each side of the base of the siphuncle.

Head very small, very narrow in front and behind the eyes. Eyes large, prominent, covered with a continuous skin with a small transparent spot. Buccal membranes large, acutely eight-lobed; lobes opposite to the base of the arms.

Arms. Sessile arms conical, subulate, short, unequal, without fins, and with two rows of cups; the third pair longest; three upper pairs shortly webbed together. Tentacular arms large; club finned behind, and with four series of cups.

Siphuncle very long, obliquely truncated at its extremity, with an internal valve, but no superior central band.

Shell horny, as long as the body, narrow, bilanceolate, and pointed at each end.

Cranchina *Gray, Proc. Zool. Soc.* 1847, 205. n. 801.
Cranchia *Férussac, Owen, D'Orb. Moll. Viv. et Fos.* i. 238.
Sepidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 238. 1845.
Calmars B. Les Cranchies *Blainville.*
Teuthidæ (pars) *Owen, Trans. Z. S.* ii. 4. 1838.

1. CRANCHIA.

See character of Family.

Cranchia *Leach, Zool. Misc.* iii. 137. 1817; *Tuckey, Voy.* 140. 1817; *Férussac et D'Orb. Tab. Céphal.* 58. 1825; *Owen, Trans. Zool. Soc.* ii. 21. 1836; *D'Orb. et Férussac, Céph. Acét.* 1839; *D'Orb. Moll. Viv. et Fos.* i. 238., *Moll. Antil.* 1839.

Calmars B. Les Cranchies *Blainv. Dict. Sc. Nat.* xxvii. 135.

1. Cranchia scabra.

Body and head covered above with numerous horny tubercles, divided into two, three, or four points. Body very voluminous, flask-shaped. Fins rounded, united by their sides. Eyes very large. Sessile arms unequal; order of their length, 3, 2, 4, 1; cups far apart on the margin of the arms. Tentacular arms contractile; cups smaller than those of the sessile arms. Shell horny, very narrow; narrowed in the middle, and expanded and acute at each end.

Cranchia scabra *Leach, Tuckey, Exped. to Congo*, 410. t. 1817, *Zool. Miscell.* iii. 137., *Journ. de Phys.* lxxxvi. 395., *Pl. de Juin*, n. 6.; *D'Orbigny, Tab. Méth. Class. de Céph.* 58.; *Owen, Trans. Zool. Soc.* ii. t. 21. f. 1—5.; *D'Orb. et Féruss. Céph. Acét.* n. 1., *Cranchia*, t. 1. f. 1.; *D'Orb. Moll. des Antilles*, i. 32. n. 7., *Moll. Viv. et Fos.* i. 239. t. 8. from Owen and Leach.

Loligo Cranchii *Blainv. Journ. de Phys.* 123. 1823, *Dict. Sc. Nat.* xxvii. 135.; *Férussac, Dict. Class. d'Hist. Nat.* iv. *Atlas*, f. 4.

Hab. Atlantic Ocean. Sea of West Indies.

a. Africa, Congo. In spirits. Mr. J. Cranch, from the Congo Expedition.

b. The shell of *a*.

2. Cranchia maculata.

Body smooth, very beautifully marked with black spots; ovate, distant. Head and arms ———— ?

Cranchia maculata *Leach, Tuckey, Exped. to Congo*, 410. t. 1817, *Journ. de Phys.* lxxxvi. 395.; *D'Orbigny, Tab. Méth. de la Class. de Céph.* 58., *Moll. Viv. et Fos.* i. 241.; *D'Orb. et Féruss. Céph. Acét.* 224.

Loligo lævis *Blainville, Journ. de Phys.* 123. 1823, *Dict. des Sc. Nat.* xxvi. 135.

Hab. Atlantic Ocean.

a. Africa, Congo. In spirits. The sac only. Presented by Mr. J. Cranch, from the Congo Expedition.

Fam. II. LOLIGOPSIDÆ.

Animal membranaceous, semipellucid.

Body elongate, tapering behind. Mantle supported by three muscular bands; one medial dorsal under the end of the shell, and one on each side of the ventral surface. Fins caudal, terminal, semicircular; their united outlines oval or rounded. Ears without any crest.

Head small, broad. Eyes lateral, anterior, peduncled, naked, without any lacrymal sinus. Buccal membrane very short No buccal, brachial, nor anal aquiferous pores.

Siphuncle without any superior central band; no internal valve.

Shell internal, horny, elongated, slender, pennate, solid.

Loligopsidæ *Gray*, *Syn. B. Mus.* 1840, *Proc. Zool. Soc.* 1847, 205.; *D'Orb. Moll. Cuba*, i. 7., *Ann. Sc. Nat.* xvi. 1841, *Moll. Viv. et Fos.* i. 367. 1847.

Teuthidæ (pars) *Owen*, *Trans. Zool. Soc.* ii. 2. 1838.

1. LOLIGOPSIS.

Body very much elongated, conical, attenuated. Mantle supported by three muscular bands; one medial, dorsal, under the end of the shell, and one on each side of the ventral surface. —*Head* small, broad, very short, much depressed, narrow behind. Eyes peduncled, very large, naked. Buccal membrane seven-lobed, without cups. — Sessile *arms* conical, subulate, very contracted, rounded, very unequal. Cups oblique, peduncled, in two alternating series; rings smooth. Tentacular arms not retractile, slender, marginal, dorsal. — *Siphuncle* very large, broad, elongate, nicked on the sides, without any central superior band or internal valve. — *Shell* internal, horny, flexible, slender, keeled above; very narrow, lanceolate, thickened at the tip. — Living in the high seas.

Loligopsis (Calmaret) *Lamck. Extr. d. Cour.* 1812; *Férussac et D'Orb. Céph.* 1839.

Loligopsis *Lamck. Hist.* vii. 659. 1822; *D'Orb. Moll. Cuba*, i. 7. 1841, *Moll. Viv. et Fos.* i. 368.; *Grant*, *Trans. Zool. Soc. Lond.* i. 21. *Anat.* 1847; *Owen*, *Trans. Zool. Soc.* ii. 2.

Leachia *LeSueur*, *Jour. Acad. Philad.* ii. 89. 1821, not Risso, E. M. 1826; "*Lesson*," *Blainv. Malac.* 1825.

Loligo sp. *Blainville*, *Journ. de Phys.* 1823.

Perothis *Eschscholtz*, *MS.* 1827?; *Rathke*, *Mém. Acad. Pétersb. par divers savans*, ii. 1835.

* *Smooth.*—Loligopsis.

1. Loligopsis pavo.

Body smooth, very much elongated, conical, spotted with red. Fins terminal, short, soft, narrow, outline together heart-shaped, not notched in front. Sessile arms short, slender, three upper pair rounded. Cups much depressed, broad, oblique; rings smooth exteriorly, inner edge divided into square teeth. Tentacular arms slender. Shell elongate, very thin, nearly gelatinous, attenuated anteriorly, lanceolate posteriorly.

Loligo pavo *LeSueur*, *Journ. Acad. Nat. Sc. Philad.* ii. 96. n. 5. t. ad p. 97. 1821; *Blainv. Journal de Phys.* 1823, 33., *Dict. des Sc. Nat.* xxvii. 145.; *Féruss. Dict. Class.* iii. 67. n. 16.

Loligopsis pavo *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 6. f. 1. 4., *Loligopsis*, t. 4. f. 1. 8. 1839; *D'Orb. Moll. Viv. et Fos.* i. 369. t. 23. f. 5—10.

Hab. Atlantic Ocean, Arctic Seas, Madeira.

2. Loligopsis ellipsoptera.

Body funnel-shaped, semipellucid; hinder part of the body elongate, tapering. Fins depressed, semicircular, rounded, outline together oblong. Siphuncle very large. Arms very unequal; comparative length, 2, 3, 1, 4; the second pair longest; dorsal and ventral pairs small. Shell slender, penniform, horny.

Loligopsis ellipsoptera *Adams*, *Zool. Voy. Samarang*, *Mollusca*, t. 2. t. 1. f. 1.

Hab. North Atlantic.

Mr. Adams only describes eight arms, probably the peduncled arms were destroyed. Scarcely appears to differ from *L. cyclura.*

3. Loligopsis Zygæna.

Fins half-oblong, together nearly square, narrower in front, broader and sinuous behind. Sessile arms, order of length, 1, 2, 4, 3; two upper pair longest, two lower short; the dorsal pair webbed at the base, rest free. Tentacular arms with small cups scattered on the elongated peduncles.

Loligopsis Zygæna *Verany*, *Cephal. ex Sicily*, t. 1. f. 2.

Hab. Sicily.

4. Loligopsis vermicolaris.

Neck very thin and long. Fins together subcordate. Sessile arms with very small distant cups in alternate series; ten-

tacular arms with very numerous microscopic cups. Shell very slender.

Loligopsis vermicolaris *Rüppell, Giorn. del Gabinetto di Messina*, xxvi. 1844–5.

Hab. Sicily.

** *Sides with Rows of acute Tubercles. Shell solid at Tip.*—Leachia *LeSueur*, Perotis *Esch.*

5. Loligopsis cyclura.

Body elongate, rather fusiform, attenuated behind, whitish, spotted with red; sides with a longitudinal row of eleven acute four-pointed tubercles, and many smaller ones. Fins semicircular, broad, together subrhomboidal. Sessile arms large, conical, very contractile, unequal; proportionate length, 3, 2, 4, 1. Cups nearly spherical; rings oblique. Shell elongate, thin, very narrow anteriorly, lanceolate, rather dilated behind; tip very sharp, attenuated, solid.

Leachia cyclura *LeSueur, Journ. Acad. Nat. Inst. Soc. Philad.* ii. 90. t. 6. 1821.

Loligopsis cyclura *Féruss. Dict. Class.* ii. 68. pl. f. 3. 1823; *D'Orb. Moll. Viv. et Fos.* i. 370. t. 23. f. 4.

Loligo Leachii *Blainv. Dict. Sc. Nat.* xxvi. 135., *Journ. de Phys.* 1823, p. 124.

Loligopsis Leachii *Féruss. D'Orb. Tab. de Céph.* 57. 1825.

Loligopsis guttata *Grant, Trans. Zool. Soc. Lond.* i. 21. t. 2. 1833; *D'Orb. Céph. Acét. Loligops.* t. 1. f. 1. t. 3. t. 4. f. 9—16.

Perothis pellucida *Eschscholtz, MS.* 1827.

Perothis Escholtzii *Rathke, Mém. de l'Acad. des Sc. de St. Pétersb. par divers savans*, ii. 149. 1835. 149. t. 1. f. 1—15.

Hab. Indian Ocean.

*** *Doubtful Species.*

6. Loligopsis ? Peronii.

Body fleshy, oblong; the mantle subacute at the base, and finned inferiorly. Mouth terminal, surrounded with eight sessile and equal arms.

Loligopsis Peronii *Lamck. Cours de Zool.* 123. 1812, *An. s. Vert.* vii. 659.; *Férussac, Dict. Class.* ii. 68.; *Féruss. et D'Orb. Tab. Céph.* 57.; *D'Orb. Moll. Viv. et Fos.* i. 372.

Sepia sepiola Peronii *LeSueur, Journ. Acad. Nat. Sc. Philad.* ii. 100. 1821.

Sepiola minima *LeSueur*, l. c. 100. 1821.

Loligo parvula *Péron, MS.* (fide de Blainville).
Loligo Peronii *Blainv. Journ. de Phys.* 1823, p. 124., *Dict. des Sc. Nat.* xxvii. 136.

Hab. South Seas.

7. Loligopsis ? ? chrysophalmos.

Body elongate, narrow; a large oval eyed spot on the middle of the ventral surface.

Loligopsis chrysophalmos *D'Orb. Moll. Viv. et Fos.* i. 373. n. 4.
Sepia chrysophalmos *Tilesius Krusenstern, Voy. Atlas*, t. 88. f. 32. 33.
Loligopsis Tilesii *Féruss. Calmars*, t. 1. f. 2, 3, 4. 1825.
L. chromorpha *D'Orb.* l. c. 373. 1845.

Hab. Japan.

8. Loligopsis dubia.

Perothis dubia *Rathke, Mém. Acad. Imp. Pétersb. par divers savans*, ii. 148. t. 1. f. 16, 17. 1835.

Hab. ——— ?

B. *Mantle free; furnished with two internal cartilaginous Ridges on the ventral Side, and a central one in the middle of the dorsal Side.*

a. *Eyes naked.*

Fam. III. CHIROTEUTHIDÆ.

Animal semipellucid.
Body elongate, tapering behind. Mantle supported by two oblong cartilages placed on the inside of the mantle, with grooves on the base of the siphuncle, and a ridge or groove on the middle of the back. Fins on the sides of the hinder part of the back.
Head moderate. Ears without any crest. Eyes lateral, sessile, naked, without any lacrymal sinus. Buccal membrane short. Buccal aquiferous opening distinct.
Arms very long. Tentacular arms not retractile, external to the web.
Siphuncle without any superior central band or internal valve.
Shell internal, horny, elongate, slender, without any chambers.

Loligopsidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 377.
Cranchia sp. *Férussac, Mag. Zool.* 1834.
Loligopsis sp. *Férussac, Mag. Zool.* 1834.

Synopsis of the Genera.

1. Chiroteuthis. Arms free; cartilages of the mantle dilated below. Rings of cups contracted in the middle. Shell slender, dilated at each end.
2. Histioteuthis. Three upper pairs of sessile arms webbed nearly to the end; cartilages of mantle linear, elongate. Rings of cups convex externally. Shell broad, pennate.

A. *Shell narrow, rather dilated at each End. Base of long Arms with scattered Cups.*

1. CHIROTEUTHIS.

Body elongate, conical. Fins on the hinder part of the sides of the back. — *Head* elongate, depressed, narrowed behind the eyes, without any cervical crest. Eyes large, prominent; aperture oval, not contractile. Buccal membrane thin, seven-lobed; buccal aquiferous apertures six, distinct. — *Arms* very long. Sessile ones conical, subulate, rounded, webbed at the base; cups very small globular, oblique, strongly pedunculed, in two alternate lines; ring very oblique, with a circular depression. Tentacular arms exceedingly long, very slender, cylindrical; with small alternate cups scattered on their whole length. Club lanceolate, terminating in a fleshy cup; sides with a broad membrane; cups in four rows, on long cylindrical peduncles swollen at the end, and bearing a second pedicle carrying a hood-like horny ring edged at the base, with a lateral aperture armed with teeth. — *Siphuncle* short, without superior band or valve. The cartilage on the side of the siphuncle oval, transverse, with a large tubercle on each side of the oblong cavity; mantle with an oblong cartilage, larger beneath, and with a pit on each side to receive the tubercles on the siphuncle. — *Shell* internal, horny, very slender, slightly dilated into a narrow lanceolate expansion at each end.

Chiroteuthis *D'Orb. Céphal. Acétab.* 1839, *Ann. Sci. Nat.* xvi. 1841; accidentally confounded with Cirroteuthis *Gray, P. Z. Soc.* 1847, 205.

Loligopsis sp. *Féruss. Mag. Zool.* 1834; *Verany, Acad. Torino.*

1. Chiroteuthis Veranyi.

Body smooth: fins semicircular, together heart-shaped. Head large. Sessile arms very large, rounded, acuminate, unequal; order of length, 4, 3, 2, 1; rings of the three upper pairs with very close acute teeth, longest on the broader side. Tentacular

arms twelve times as long as the body, with a lanceolate club. Shell very narrow; the lowest part with the longest and broadest expansion.

Loligopsis Coindetii *Verany, MS.*
Loligopsis Veranyi *Féruss. Mag. de Zool.* 1834, t. 65., *Règne Animal de Cuv.* t. 6.
Chiroteuthis Veranyi *D'Orb. Céph. Acét. Calmars*, t. 2. t. 4. f. 17—23. 1839, *Moll. Viv. et Fos.* i. 377. t. 24.

Hab. Mediterranean.

2. Chiroteuthis Bonplandi.

Body elongate, conical. Head moderate. Fins half the length of the body, together rhomboidal. Sessile arms subulate, with rounded tubercles at the end, unequal; order of length, 3, 2, 1, 4. Shell very narrow in the middle; narrow above, and dilated below.

Chiroteuthis Bonplandi *D'Orb. Moll. Viv. et Fos.* i. 378. 1845.
Loligopsis Bonplandi *Verany, Acad. di Torino*, i. 2d ser. t. 5. 1837.

Hab. Atlantic Ocean.

B. *Shell lanceolate, pennate.*

2. HISTIOTEUTHIS.

Body short, cylindrical, pointed behind; cartilage on siphuncle with a deep groove, with raised edges; those on the mantle longitudinal, larger below. Fins large, rounded, on the sides of the ends of the body; nicked before and behind.—*Head* very large, cylindrical, without any cervical crest. Eyes large, naked, not prominent, with an external aperture without any lacrymal sinus or contractile eyelids. Buccal membrane broad, extensile, six-lobed, without any cups. Four buccal aquiferous openings, one on each side of the base of the upper and lower arms; and two brachial openings on the outside of the tentacular arms; no anal opening. — Sessile *arms* large, voluminous, rather unequal; the three upper pairs united by a web near to the end; lower pair free; cups very small, oblique, fleshy, peduncled, in two rows very far apart. Tentacular arms outside of the web; club lanceolate, finned externally, and with a membrane on the sides; cups in six alternate lines, rather oblique; rings armed with acute teeth.—*Siphuncle* very short, thick. —*Shell* horny, flexible, lanceolate, pennate; expansion, thin; narrow above, with a longitudinal central ridge.

Histioteuthis *D'Orb. Céphal. Acétab.* 1839, *Ann. Sc. Nat.* xvi.

1841, *Moll. Cuba*, i. 7. 1841, *Moll. Viv. et Fos.* i. 79. t. 253. 1848; *Desh.* in *Lamck. Hist.* xi. 237.; *Gray*, *Proc. Zool. Soc.* 1847, 205.

Histioteuthys *Verany*, *Cat. Invert.* 17. 1846.

Cranchia sp. *Féruss. Mag. de Zool.* 1835, p. 66.

1. Histioteuthis Bonelliana.

Body short, obtuse. Head very large; and head, body, and arms, scattered with tubercles. Sessile arms subequal, fleshy. Fins semicircular, broad. Shell broad, lanceolate.

Cranchia Bonelliana *Féruss. Mag. de Zool.* 1835, p. 66.

Histioteuthis Bonelliana *D'Orb. Céph. Acét. Cranchies*, t. 2. 1839, *Moll. Viv. et Fos.* i. 380. t. 25.

Hab. Mediterranean, near Nice. *Verany.*

2. Histioteuthis Ruppellii.

Body, head, and arms granular. Head large. The second and third pairs of arms longer, first and fourth shorter. Cups blue. Fins ———.

Histioteuthis Ruppellii *Verany*, *Congress. Milano*, *e Cat. Anim. Inv. Genova*, 17. 28. n. 53. t. 3.

Hab. Genoa.

Perhaps only a variety of the former.

Fam. IV. ONYCHOTEUTHIDÆ.

Body elongate, fleshy. Fins posterior, dorsal, angular, together rhomboidal. Mantle supported by cartilaginous tubercles and loops in front. Anal aquiferous opening distinct.

Head moderate, cylindrical. Eyes lateral, naked, with a deep lacrymal sinus at the upper edge. Buccal membrane large. Ears with a well marked longitudinal crest.

Tentacular *arms* with a rounded group of small sessile cups at the extremity of the club.

Siphuncle with one or two bands on each side above, and with a distinct internal valve.

Shell internal, horny, lanceolate, without any air-chambers.

Teuthidæ (pars) *Owen*, *Trans. Zool. Soc.* ii. 1838.

Teuthidæ *D'Orb. Moll. Viv. et Fos.* i. 382. 1848.

Onychoteuthidæ *Gray*, *Proc. Zool. Soc.* 1847, 206.

Synopsis of Genera.

A. *Tentacular and sessile Arms with claw-like Hooks.*

1. *Enoploteuthis.*—Fins subterminal, dorsal, rhombic. Sessile arms with hook only. Shell pennate, lanceolate.
2. *Ancistrocheirus.*—Fins occupying the whole side of the back, rhombic. Sessile arms with hooks only. Shell dilated at each end.
3. *Abralia.*—Fins subterminal. Sessile arms with hooks at the base and cups at the tip. Shell lanceolate, concave on the edges.
4. *Octopodoteuthis.*—Fins on the hind part of the back, roundish. Shell narrow.
5. *Acanthoteuthis.*—Fins ———— ? Shell narrow, gradually dilated above.

B. *Tentacular Arms with Hooks. Sessile Arms with Cups and Rings.*

6. *Onychoteuthis.*—Club of tentacular arm with hooks. Shell lanceolate, pennate, sides thin.
7. *Ancistroteuthis.*—Club of tentacular arm with hooks only. Shell narrow, rather dilated in front, with one central and two marginal ribs.
8. *Onychia.*—Club of tentacular arm with hooks on the centre, and with two rows of small cups on each side. Shell lanceolate, pennate.

C. *Tentacular and sessile Arms with Cups and horny Rings.*

9. *Ommastrephes.*—Fins rhombic, posterior, caudal. Internal cartilage of mantle dilated below. Shell narrow, dilated in front with one central and two marginal ribs.

A. *Tentacular and sessile Arms furnished with Hooks.*

1. ENOPLOTEUTHIS.

Body elongate, with regular longitudinal lines of minute tubercles beneath; sometimes produced into a more or less elongate acute tail. Fins angular, on the hinder part of the back; together rhombic.—*Head* rather large, subcylindrical. Buccal membrane eight-lobed; two upper bands distinct, and inserted between the two dorsal arms.—Sessile *arms* with a series of closed horny claw-like hooks, enlarged at their base, and

covered with a closely fitting membrane. Tentacular arms slender, feeble, scarcely clubbed, armed with hooks only.— *Siphuncle* with two superior central bands. — *Shell* pennate, lanceolate, sometimes sinuous at the side, and without any appendix at the tip; the central ridge narrow, keeled, produced in front.

Enoploteuthis *D'Orb. Moll. Viv. et Fos.* i. 398., *Céph. Acét.* 1839; *Gray, Proc. Zool. Soc.* 1847, 206.
Loligo sp. *Leach, Zool. Misc.* 1817.
Onychotheutis sp. *Férussac, Tab. Syst.* 26. 1821.
Onychoteuthis sp. *Férussac & D'Orb. Tab. Céphal.* 1825; *Verany, Mem. Acad. Torino*, 1837.
Ommastrephes (pars) *Gray, Proc. Zool. Soc.* 1847, 206.

* *Body prolonged, and subvesicular behind; tubercular beneath.*

1. Enoploteuthis Smithii.

Head with numerous lines of small tubercles, one series extending up each side of the back of the arms. Body smooth above, with seven longitudinal lines of small rounded granules beneath; the lateral lines irregular. Sessile arms square; the dorsal pair slightly margined on the outer edge; the second pair with a broad membranous edge; hooks about sixty. Tentacular arms, lower oblong group of ten small cups, half open, rest closed; hooks ten, in two alternating lines. Shell lanceolate, rather broad, outer edge regularly arched.

Loligo Smithii *Leach, Tuckey's Expedition*, Appen. 411. t. . f. adult, 1817, *Zool. Miscell.* iii. 141. sp. 3.; *Blainv. Dict. Class.* 437., *Journ. de Phys.* xcvi. 126.; *Féruss. Dict Class.* iii. 67.
Onychoteuthis Smithii *Féruss. D'Orb. Tab. Méth. Céph.* 61. sp. 9. 1825, *Céphal. Acéph.* t. 2. f. 3. cop. from Leach.
Loligo leptura *Leach, Zool. Miscell.* iii. 141 sp. 21. p. 3. 1817; *Tuckey's Exped. Congo*, App. iv. 411. t. f. 1817, *Journ. de Phys.* lxxxvi. 395. t. i. 3. 5.; *Blainv. Dict. Sc. Nat.* xxvii. 137., *Journ. de Phys.* xcvi. 126.; *Féruss. Dict. Class.* iii. 67. n. 9., *Atlas*, t. f. 3. all from Leach.
Onychoteuthis leptura *Férussac, Céphal. Acét. Onychoteuthis*, t. 2. f. 4. 1828, cop. from Leach.
Onychoteuthis leptura *Férussac, Céph. Acét. Onychoteuthis*, t. 6. 11. f. 6—14. 1839.
Enoploteuthis leptura *D'Orb. & Féruss. Moll. Céph. Acét. Onychoteuthis*, t. 12. f. 20. 1839; *D'Orb. Moll. Viv. et Fos.* i. 399. t. 27. f. 1—9., *Paléon. univer.* t. 17. f. 1—9.

Hab. Atlantic Ocean.

a. W. Africa, lat. 1° 8′ N., long. 26° 30′ E. Adult. In

spirits. Hinder part of body produced, subvesicular. Presented by J. Cranch, Esq., Congo Expedition.

Loligo Smithii *Leach*.

b, *c*. West Africa, lat. 1° 8′ N., long. 26° 30′ E. Half-grown, not good state. In spirits. Hinder part of body suddenly contracted into a short tail. Presented by J. Cranch, Esq., Congo Expedition.

Loligo leptura *Leach*.

d. West Africa, lat. 1° 8′ N., long. 26° 30′ E. The head and arms only. Presented by J. Cranch, Esq., Congo Expedition.

2. Enoploteuthis margaritifera.

Body elongate. Fins rhombic, about two-thirds the length of the body, acute on the sides. Eyes with five round tubercles on the ventral side. Sessile arms rounded behind, not finned; the third and fourth pairs much thicker. Tentacular arms scarcely enlarged above, subulate, and unarmed at the tip, with a small round group of four or five cups at the base, and three or four small hooks in the middle. Shell broad lanceolate, thin, transparent.

Enoploteuthis margaritifera *Rüppell, Giornale del Gabin. di Messina*, xxvi. 1844, 2. f. 1.

Hab. Sicily, Messina. *Rüppell.*

a, *b*. Messina. In spirits. From Dr. Rüppell's Collection.
c. The shell of *a*. in spirits.

3 Enoploteuthis Verany.

Body conical. Fins rhombic, half as long as the body, large angular on the sides. Second pair of arms finned on the outer side.

Enoploteuthis Verany *Rüppell, Giorn. del Gabin. di Messina*, xxvi. 1844, 3. f. 2.

Hab. Genoa.

4. Enoploteuthis Owenii.

Body conical, pointed behind. Fins rhombic, more than half the length of the body, nicked in front, rounded on the sides.—Rosy white.

Enoploteuthis Owenii *Verany, Congress. di Napoli, Cat. Anim. Invert. Genova*, 17. 29. n. 54. t. 6. f. 2, 3.

Hab. Genoa. Perhaps the same as *E. Verany*.

** *Body unknown.*

5. ENOPLOTEUTHIS UNGUICULATA.

Sessile arms with hooks on the whole of its length.

Large Sepia *Banks, Voy. Cook*, 1st *Voy.* ii. 301.
Sepia unguiculata *Molina, Saggio sul Stor. Nat. del Chili*, 199. 1789; *Gmel. Syst. Nat.* edit. 13. p. 3150.; *Turton, Syst. Nat.* iv. 119.; *Bose, Buffon, de Deterv.* v. 47. t. 1.; *Leach, Tuckey's Exped. Congo*, 411. note.
Le Poulpe unguiculé *Montfort, Buff. de Sonnin. Moll.* iii. 99. 1802.
Loligo unguiculata *Blainv. Dict. Sc. Nat.* xxvii. 140. 1823, *Journ. de Phys.* xcvii. 128.; *Féruss. D'Orb. Tab. Méth. Céph.* 61., *Ann. des Sc. Nat.* iv.
Onychoteuthis Molinæ *Lichtenst. Isis*, 1818, p. 1592. n. 2.
Enoploteuthis Molinæ *D'Orb. Moll. Viv. et Fos.* i. 402.

Hab. Pacific Ocean. A sessile arm in Mus. Col. Surg. London.

*** *Fossil Species.*

6. ENOPLOTEUTHIS SUBSAGITTATA.

Loligo subsagittata *Munster, Taschenb.* 1836, 582. 1839, t. 375., *Beitrag. Petref.* 107. t. 10. f. 3.
Enoploteuthis subsagittata *D'Orb. Paléont. univ.* t. 19., *Paléont. étrang.* t. 13., *Moll. Viv. et Fos.* i. 399.

Hab. Upper Oxford. Lithographic stone.

2. ANCISTROCHEIRUS.

Body subcylindrical. Fins occupying nearly the whole length of the sides of the back. — Sessile *arms* very large, long, rounded externally; hooks in two indistinct alternate lines; no cups. Tentacular arms long, moderate; hooks elongated. — *Shell* narrow, lanceolate, central groove very broad, slightly convex, gradually produced at the end.

Enoploteuthis sp. *D'Orb. Céph. Acét.* 1839, *Moll. Viv. et Fos.* 402.
Onychoteuthis sp. *D'Orb. Céph. Acét.* 1835.

1. ANCISTROCHEIRUS LESUEURII.

Body elongated, acuminate, produced, with regularly disposed tubercles underneath. Fins triangular Arms elongate. Shell narrow, lanceolate; central groove very broad, shallow.

Onychoteuthis LeSueurii *Féruss. & D'Orb. Céph. Acét. Onych.* t. 11. f. 1—5. animal, 1835.

Enoploteuthis LeSueurii *D'Orb. & Féruss. Céph. Acét, Onych.* t. 14. f. 4—10. details, 1839; *D'Orb. Paléont. univ.* t. 17. f. 10., *Paléont. étrang.* t. 14. f. 10., *Moll. Viv. et Fos.* i. 402. t. 27. f. 10.

Hab. Indian Ocean.

3. ABRALIA.

Body smooth above, granular beneath, with scattered larger tubercles. — *Head* granular. — Sessile *arms* elongate, with a single series of alternating hooks at the base, and a double row of hemispherical cups at the tip. Tentacular arms long, slender; club distinct, with a few long acute hooks alternating with a series of cups, and with two rows of cups only at the tip. — *Shell* lanceolate, sinuous at the edge near the tip; central ridge narrow, keeled, and produced above.

Enoploteuthis sp. *D'Orb. Céph. Acét.* 1839, *Moll. Viv. et Fos.* 402.
Onychoteuthis sp. *D'Orb. Céph. Acét.* 1835.

1. Abralia armata.

Body elongate, smooth above, minutely tuberculated underneath; the larger tubercles regularly disposed. Fins triangular, together very broadly lanceolate, terminal. Sessile arms slender; the third and fourth pairs with two marginal series of small tubercles; second, third, and fourth pairs crested externally. Tentacular arms slender, basal group of three or four cups; hooks four, long, acute. Shell lanceolate, sinuated at the sides near the top.

Onychoteuthis armata *Quoy & Gaim. Voy. Ast. Zool.* ii. 84. t. 5. f. 14—22. 1833; *Cuv. Règ. Animal, Illust.* t. 2.
Enoploteuthis armata *D'Orb. Céph. Acét. Onychot.* t. 9. f. 2. 6. t. 14. f. 11—14. details, 1839, *Paléont. univ.* t. 17. f. 11, 12., *Paléont. étrang.* t. 14. f. 11, 12., *Moll. Viv. et Fos.* i. 404. t. 27. f. 11, 12.

Hab. Indian Ocean, Moluccas.

2. Abralia Morisii.

Body conical, smooth, not enlarged behind. Fins very large, occupying two thirds of the length, triangular, together rhomboidal, strongly nicked in front. Head large, sessile. Shell lanceolate, broad, somewhat sinuated on the sides. Arms unequal, the lower ones longest.

Enoploteuthis Morisii *D'Orb. Moll. Viv. et Fos.* i. 401.

Onychoteuthis Morisii *Verany, Mem. del Acad. Torino*, t. 1. t. 4. (1837).

Hab. North Atlantic Ocean.

4. OCTOPODOTEUTHIS.

Body conical, tapering behind. Eyes naked? Skin round the eyes contractile? Fins large, rounded on the hinder part of the back, separated by a notch in front, united behind. Mantle with two oblong ridges inside, and with two grooves on the base of the siphuncle, free on the back, with central ridge fitting into a cervical groove. — Sessile *arms* cylindrical, curled at the end; with a double series of small, nearly sessile, subcylindrical cups, armed with short curved hooks. Tentacular arms very short; club small. — *Siphuncle* conical, with two medial superior bands. — *Shell* cartilaginous, very slender, as long as the back.

Octopoteuthis *Rüppell & Krohn* in *Giorn. del Gabinetto di Messina*, xxvi. 1844, 6.

Octopodoteuthis *Rüppell, MS.* 1845; *Gray, Proc. Z. Soc.* 1847, 205. n. 795.

Verania *Krohn, Erichson, Arch.* 1847; *Verany, Cephal. ex Sicilia*, t. i.

1. Octopodoteuthis Sicula.

Sessile arms rounded externally; the third pair rather the strongest. Fins rounded, about three fourths the length of the body, wider than the length of the body, continued over the back, with an acute notch behind, a rounded one above.

Octopoteuthis Sicula *Rüppell & Krohn*, in *Giorn. del Gabinetto di Messina*, xxvi. 1844, 6.

Verania Sicula *Krohn, Erichson, Arch.* 1847, t. . f. .; *Verany, Cephal. ex Sicilia*, t. 1. f. 4.

Hab. Sicily.

a. Sicily. In spirits. From Dr. Edward Rüppell's Collection.

5. ACANTHOTEUTHIS.

Fossil. *Animal* elongate, cylindrical. Fins terminal, short, angular. — *Arms* ten, rather unequal, with two lines of hooks. — *Shell* internal, horny, elongate, tapering, broad above, pointed behind, without any terminal appendix, and with a central longitudinal groove gradually becoming wider and less evident above.

Kalæno *Munster*, 1836, not Munster, 1842; *D'Orb. Paléon. Franç.* 1842, *Moll. Viv. et Fos.* i. 162.
Acanthoteuthis *Wagner*, 1839; *D'Orb. Moll. Viv. et Fos.* i. 407, 1847, *Desh.* in *Lamck. Hist.* xi. 238.
Onychoteuthis sp. *Munster*, 1837.
Loligo sp. *Rüppell*, 1829.

1. Acanthoteuthis prisca.

Body elongate, subcylindrical. Fins terminal, angled. Shell depressed, three-keeled, conical.

Loligo priscus *Rüppell*, *Abbild. und Besch.* 8. t. 3. f. 1. 1829.
Onychoteuthis angusta *Munster*, *Lehrb.* 404. 458. 1830, 250—630. 1836, 252. 1837.
Kelæno spinosa *Munster*, *MS.* 1836.
Kelæno Ferussacii *Munster*, *MS.* 1836.
Kelæno sagittata *Munster*, *MS.* 1836.
Onychoteuthis spinosa *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis Ferussaci *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis sagittata *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis subovata *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis tricarinata *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis lata *Munster*, *MS.*
Kelæno speciosa *D'Orb. Paléont. Franç.* i. 140. n. 35. t. 23. f. 1—4. 1842.
Acanthoteuthis Ferussacii *Munster*, *Beitrag.* i. 104. t. 10. f. 1. 1839; *Chenu. Leçon. élém. H.N.* 238. f. 761.
Acanthoteuthis Lichtensteinii *Munster*, i. 105. t. 10. f. 2. 1839.
Acanthoteuthis speciosa *Munster*, *Beitr.* i. 105. t. 9. 1839.
Acanthoteuthis brevis *Munster*, *Beitr.* v. t. 1. f. 3. 1842.
Acanthoteuthis prisca *D'Orb. Paléont. univ.* t. 19, 20, 21. 1845, *Paléont. étrang.* t. 16, 17, 18., *Moll. Viv. et Foss.* i. 409. t. 28.

Fos. Upper Oxford Clay, Lithographic stone.

B. *Cup of tentacular Arms with claw-like Hooks; of sessile Arms with Rings.*

6. ONYCHOTEUTHIS.

Body elongate, subcylindrical, smooth, acuminated behind. Mantle with an elongated, narrow, prominent, longitudinal ridge, fitting into a similar groove on the base of the siphuncle. Fins terminal, very broad, together rhomboidal.—*Head* large, rather depressed, with three or eleven longitudinal ridges, and edged behind by a transverse ridge. Eyes large, lateral. Buccal membrane extensile, seven-lobed, without cups. A brachial aquife-

rous pore on each side, between the third and fourth pairs of arms. Six buccal pores and an anal pore above the siphuncle.— Sessile *arms* angular; third or fourth pair with a keel or fin; cups in two alternating lines; rings convex and toothless. Tentacular arms partly retractile, strong; club enlarged, with a rounded group of small sessile cups at each end, and two series of claw-like hooks, the outer series largest.—*Siphuncle* very short, lodged in a cavity, with two superior muscular bands.—*Shell* lanceolate, pennate, as long as the back; tip acute; end produced, narrow; sides dilated, thin, with a central longitudinal keel contracted at the end.

Onychoteuthis (pars) *Licht. Berl. Acad.* 1818; *Isis*, 1819, 1591. 1820; *Blainv. Malac.* 1825; *Desh.* in *Lamck. Hist.* xi. 237.; *D'Orb. Moll. Viv. et Fos.* i. 386.
Sepia sp. *Fabricius, Faun. Groenl.* 359.; *Molini.*
Loligo sp. *Leach, Blainville, LeSueur, Ann. Sci. Philad.*
Onykia sp. *LeSueur, Ann. Sci. Philad.* ii. 99. 1821, ii. 296. 1822.
Onyckia *Lesson, Berthold*, 1827?; *Latr. Fam. Nat.* 1825, not Hübner, 1816, nor Walker, 1835.
Ancistrochirus *Leach, MS. Brit. Mus.* 1817.
Onychotheuthis *Férussac, Tab. Syst.* 24. 1821.

1. Onychoteuthis Banksii.

Body very elongate, cylindrical, acuminate behind. Head with eleven longitudinal small prominent ridges. Fins rhomboidal. Sessile arms conico-subulate, unequal; in length, 2, 3, 4, 1; cups with a fleshy excrescence, compressed, pear-shaped. Tentacular arms very extensile, apical, armed with a double series of hooks; the basal group consisting of about seven or eight open and seven or eight not pierced cups, the apical group of sixteen or seventeen cups all open; hooks twenty to twenty-two in two rows, those of the outer row largest.

Loligo Banksii *Leach, Zool. Miscell.* iii. 141. sp. 4. 1817; *Tuckey's Voy. to Congo*, App. iv. 411. sp. 1.; *Blainv. Dict. Sc. Nat.* xxvii. 137., *Journ. de Phys.* lxxxvi. 125.; *Féruss. Dict. Class.* 67. n. 8.
Oncistrochirus Banksii *Leach, MS. B. Mus.* 1817.
Anichoteuthis Banksii *Férussac, Tab. Céph.* 61. 1825.
Onychoteuthis Bergii *Lichtenst. Zool. Mus. des Univ. zu Berlin*, p. 1592. n. 4. t. 19. f. a. 1818; *Féruss. D'Orb. Tab. Céph.* n. 5. p. 61.; *D'Orb. Moll. des Antilles*, i. 46. n. 12.; *D'Orb. et Féruss. Céph. Acét. Onychoteuthis*, t. 5. f. 1—9. from Licht.
Loligo Bergii *Blainv. Dict. Sc. Nat.* xxvii. 138. 1823, *Journ. de Phys.* lxxxvi. 126.; *Féruss. Dict. Class.* iii. 67.
Sepia loligo *Fabricius, Faun. Groenl.* 359.

Dinten-Fish *Crantz*, *Hist. von Groenl.* 134.
Onychoteuthis Fabricii *Lichtenst. Isis*, 1818, t. 19.; *Féruss. D'Orb. Céph.* 61. n. 10.
Loligo Fabricii *Blainv. Dict. Sc. Nat.* xxvii. 126. 1823.
Onykia angulata *LeSueur*, *Journ. Acad. Philad.* ii. 99. t. 9. f. 3. 296. t. 178. on a figure, 1821.
Loligo angulatus *Féruss. Dict. Class.* iii. 67. 1823.
Onychoteuthis angulata *Féruss. Céph. Acét. Onych.* t. 1. 1825; *D'Orb. Tab. Céph.* 60. n. 2., *Voy. Amér. Mérid. Mol.* 42.; *Guérin, Icon. Règ. Anim.*
Loligo felina *Blainv. Dict. Sc. Nat.* xxvii. 139. 1823, *Journ. de Phys.* lxxxvi. 125.
Onychoteuthis felina *Féruss. D'Orb. Tab. Céph.* 60. n. 4. 1825.
Onythoteuthis Molinæ *Leach*, *Berl. Trans.* 1818, t. 4. copied O. Bergi *Féruss. Céph. Acét. Onyth.* t. 5.
Loligo uncinatus *Quoy & Gaim. Voy. Uranie*, *Zool.* i. 410. t. 66. f. 7. 1838.
Onychoteuthis uncinata *Féruss. D'Orb. Tab. Céph.* 60. n. 3. 1825.
Onychoteuthis Lessonii *Féruss. D'Orb. Tab. Céph.* 61. n. 6. 1825, *Lesson*, *Voy. de la Coq.* t. 1. f. 3. from a drawing.
Onychoteuthis Fleurii *Renaud*, *Lesson*, *Centurie Zool.* 61. t. 17.; *Féruss. Céph. Acét. Onyth.* t. 9.

Hab. Atlantic and Indian Oceans.

a. Africa. Small. In spirits. Presented by J. Cranch, Esq., Congo Expedition.
L. Banksii *Leach*, 1817.
b. The shell of *a.* dry.
Ancistrochirus Banksii *Leach*, *MS.* 1817.

2. Onychoteuthis Bartlingii.

Body elongate; back with a central transparent line over the keel of the shell. Fins posterior, rhombic, angular. Sessile arms slender; dorsal pair rounded externally, with a slight fin on the upper part; the second, third, and fourth pairs finned on the outer side nearly the whole length. Tentacular arms with six large hooks. Shell dark brown, lanceolate, pennate, with a short central keel above and ridge beneath, thin.

O. Bergii *Licht.? Féruss. Céph. Acét. Onyth.* t. 7.
Loligo Bartlingii *LeSueur*, *Jour. Acad. Phil.* 95. t. cop. *Féruss. Céph. Acét.* t. 3.
Onychoteuthis Bartlingii *Féruss. Céph. Acét. Onyth.* t. 3.
Onychoteuthis Banksii (pars) *D'Orb. Moll. Viv. et Fos.* i. 386. t. 26. f. 1. 7. from *Féruss. Céph. Acét.* t. 7.
Onychoteuthis LeSueurii *Féruss. Céph. Acét.* t. 4. from LeSueur's specimen.

Hab. Indian Ocean.

a. Borneo.? In spirits. Half-grown. Presented by Capt. Sir Edward Belcher, C.B. R.N.

b. Shell of *a*.

c. New Zealand. In spirits. Adult. Presented by A. Sinclair, M.D. R.N.

d. Shell of *c*.

7. ANCISTROTEUTHIS.

Body smooth.—Tentacular *arms* with a round group of small cups with rings at the base and apex of the club; and with two alternating series of hooks; the upper series the largest.—*Shell* horny, linear, very narrow, gradually widening to the front or upper end; sides thickened on the edge; apex conical, long, and obliquely produced, horny.—Otherwise like *Onychoteuthis*.

* *Body smooth.*

1. Ancistroteuthis Lichtensteinii.

Head large, with eight longitudinal ridges. Body elongate, narrowed posteriorly, produced. Fins triangular, together rhomboidal. Sessile arms subulate, unequal; in length, 4, 3, 2, 1; cups very much crowded; rings with entire edges; dorsal pair rounded behind; second pair slightly; third pair broadly webbed in the middle, externally; fourth pair webbed externally at the base. Tentacular arms; the basal group of cups twenty-one, about half closed; the apical group sixteen or seventeen, all open, and with rings; hooks twenty-two. Shell depressed, narrowed, transparent; apex longly produced, solid, cartilaginous, compressed.

Onychoteuthis Bellonii *Féruss. & D'Orb. Céph. Acét.* 1835.

Onychoteuthis Lichtensteinii *Féruss. MS.* 1834; *Féruss. et D'Orb. Céph. Acét. Onych.* t. 8. anim., t. 14. f. 1—3. shell, 1839; *D'Orb. Moll. Viv. et Fos.* i. 391. t. 26. f. 8—12.

Hab. The Mediterranean, near Nice.

a. Mediterranean, Messina. In spirits. Adult.

b. The shell of *a*.

c. Mediterranean. In spirits. Adult. Presented by P. B. Webb, Esq.

2. Ancistroteuthis Krohnii.

Tentacular arms short; club with a series of hooks on one, and of small cups on the other, margin. Shell linear, narrow at the base, margined on the edge, rather wider above the middle; the apex with a conical produced tip.

Onychoteuthis Krohnii *Verany, Ceph. ex Sicilia*, t. 1. f. 3.
Hab. Sicily.

** *Body shagreened.*

3. Ancistroteuthis Dussumieri.

Body elongate, subcylindrical; very finely shagreened with very crowded, small, acute tubercles. Fins short, together rhomboidal. Sessile arms unequal; in length, 2, 4, 3, 1; with a longitudinal groove. Tentacular arms very slender, without any club, with thirty hooks in two series; rings of cups oblique, entire. Shell narrow; the apex with a very long conical very acute solid horny tip.

Onychoteuthis Dussumieri *D'Orb. Moll. Viv. et Fos.* i. 392.; *D'Orb. et Féruss. Céph. Acét. Onych.* t. 13. 1839.

Hab. Indian Ocean, 200 miles north of Mauritius.

8. ONYCHIA.

Body red, spotted.—Tentacular *arms* scarcely enlarged at the end, with two longitudinal series of claw-like hooks in the centre of the club, and a row of pedicelled cups on each side furnished with horny rings.—*Shells* lanceolate, pennate, dilated above and narrow in front, with a central ridge.—Otherwise like *Onychoteuthis.*

Onykia *LeSueur, Jour. Acad. N. S. Philad.* i. 98. 1821, ii. 296. 1822.
Onychia *Latr. Fam. Nat.* 1825; *Berthold*, 1827; *Gray, Proc. Zool. Soc.* 1847.
Onychoteuthis sect. ii. *D'Orb. Moll. Viv. et Fos.* i. 386.
Onychoteuthis sp. *Férussac, Tab. Syst.* 28. 1821; *D'Orb. et Féruss. Céph. Acét.* 1839.
Sepiola sp. *LeSueur*, l. c.
Cranchia *Péron.*
Cranchia sp. *Férussac, Dict. Class. H. N.* v.
Loligo sp. *Péron.*
Sepia sp. *Oken.*
Sepiola sp. *LeSueur.*

* *Fins terminal, very short. Cups subequal.*

1. Onychia Cardioptera.

Body large, oblong, narrowed, and prolonged behind, variegated with red spots; fins round, terminal, together subrhomboidal. Sessile arms unequal; in length, 3, 2, 4, 1; cups in two alternating lines. Tentacular arms long, scarcely enlarged at the end. Shell pennate, rather broad, sides rounded.

Loligo Cardioptera *Péron, Voy. Atlas*, t. 60. f. 5. 1804; *Blainv. Journ. de Phys.* 123., *Dict. des Sc. Nat.* xxvii. 135.
Sepiola Cardioptera *LeSueur, Journ. Acad. Nat. Sc. Philad.* ii. 100. 1821.
Cranchia Cardioptera *Féruss. Dict. Class. Atlas*, t. 5. 1823; *D'Orb. Tab. Méth. Céph.* 58.; *Féruss. et D'Orb. Céph. Acét. Cranchie*, t. 1. f. 2, 3. cop. Péron; *D'Orb. Voy. Am. Mérid. Moll.* 34.
Sepia Cardioptera *Oken, Lehrb. des Zool.* 343. n. 5.
Onychoteuthis Cardioptera *D'Orb. Moll. des Antilles*, i. 53. n. 13. 1838, *Moll. Viv. et Fos.* i. 389.
Onykia Caribæa *LeSueur, Journ. Acad. Nat. Sc. Philad.* ii. 98. t. 9. f. 1, 2. 1821.
Loligo Caribæa *Blainv. Dict. Sc. Nat.* xxvii. 139. 1823, *Journ. de Phys.* lxxxvi. 127.; *Féruss. Dict. Class.* iii. 67. *Atlas*, f. 4.
Onychoteuthis Caribæa *Féruss. Céph. Acét. Onyth.* t. 5. f. 4. 7. from LeSueur; *D'Orb. Tab. des Céph.* 60., *Moll. des Antilles*, i. 57. n. 14.
Onychoteuthis Leachii *Féruss. Céph. Acét. Onych.* t. 10. f. 1. 4., shell represented as expanded at each end.

Hab. Atlantic Ocean.

*** Fins dorsal. Cups of lateral Arms unequal.*

2. ONYCHIA PLATYPTERA.

Body cylindrical, smooth; fins elongate, triangular, together narrow lozenge-shaped. Sessile arms long, unequal; in length, 3, 4, 2, 1; cups very unequal, especially of the lateral arms. Tentacular arms short, not enlarged at the end; basal group of twenty-two cups half open, rest closed; hooks twelve. Shell broad, lanceolate; apex with a conical, horny, compressed appendix at the tip.

Onych. platyptera *D'Orb. Voy. Am. Mérid. Moll.* 41. t. 3. f. 8. 11. 1835; *D'Orb. et Féruss. Céph. Acét. Onych.* t. 10. f. 8–10. t. 14. f. 16–22. details; *D'Orb. Moll. Viv. et Fos.* i. 393. t. 26. f. 13.
Onych. peratiptera *D'Orb. Voy. Am. Mér.* 39. t. 3. f. 5–7. cop. 1835; *Féruss. et D'Orb. Céph. Acét. Onythoteuthis*, t. 10. f. 5. 7.

Hab. Coast of Chili. Indian Ocean.

C. *Cups of tentacular and sessile Arms with horny Rings.*

9. OMMASTREPHES.

Head short, cylindrical, rather depressed, rather narrowed behind the eyes, and there very prominent longitudinal ridges on the nape. Eyes very large, lateral, naked, with an oval external opening and a large lacrymal sinus. Buccal membrane very extensi-

ble, seven-lobed, without cups.—*Body* elongate, cylindrical, very long, acuminated behind, truncated, square in front. Cartilages on base of siphuncle, contracted below and with a tubercle on each side, on inside of mantle enlarged, thick, and with transverse rib below. Fins posterior, terminal, very broad, together forming a transverse rhomboid. Aquiferous pores between the third and fourth pairs of arms; four buccal pores, one on each side of the base of the first pair, and one on each side between the third and fourth pair, communicating with a large cavity which surrounds the mouth; two anal pores on each side of the siphuncle, outside of the external band. — Sessile *arms* conical, subulate, upper and lower quadrangular, the others triangular, compressed, unequal; in the following order, 3, 2, 1, 4; cups very oblique, fleshy, distinct; rings oblique, toothed. Tentacular arms not retractile, short, strong, thick, with a slight longitudinal ridge, scarcely enlarged at the end, webbed at the tip; cups oblique, fleshy, in four alternate lines, two middle series large, two lateral small, with a rounded basal and apical group of small sessile cups.—*Siphuncle* lodged in a cavity, short, broad, with superior medial bands, and an internal valve above.—*Shell* horny, flexible, as long as the body, narrow, gradually wider above, with a central and two marginal ribs; apex with a hollow conical cavity, without any septa.

Living in the high seas in large troops, nocturnal; the food of Cetacea and pelagic birds.

Calamar flesches *Blainv. Dict. Sci. Nat.* 1823.
Cycria *Leach*, *MS.* 1817.
Ommastrephes *D'Orb. Moll. Viv. et Fos.* i. 412. 1845; *Desh.* in *Lamck. Hist.* xi. 239; *Gray*, *Proc. Z. Soc.* 1847, 206.
? Peroteuthis *Ehrenb.*
Loligo sp. *Lamck.*, *Rüppell.*
Sepia sp. *Linn.*
Onychoteuthis sp. *Munster.*

§ *Body opaque, fleshy, smooth above and below. Cups of sessile Arms equal, moderate.*

* *Second and third Pairs of sessile Arms without any membranaceous Fringe on the inner Edge of the ventral Side, but only a Series of small conical Tubercles.*

† *The tentacular Arms with eight Rows of numerous small Cups at the End near the Tip.*

1. Ommastrephes sagittatus.

Head large. Body elongate, cylindrical. Fins broad, together rhomboidal. Sessile arms thick, long; rings of cups variable.

Tentacular arms elongate, compressed; club scarcely enlarged, covered only with cups, the lower ones in two series, the central in four; large of central scarcely oblique, the small lateral ones very oblique; upper part with a multitude of small cups in eight rows. Shell narrow, elongate; lateral ribs largest; apical cone large.

Sepia loligo *Linn. Syst. Nat.* edit. 12. 1095. n. 4. 1767; *Gmel. Syst. Nat.* edit. 13. 3150.; *Brug. Enc. Méth.* t. 77. f. 12.
Sepia media *Barbut, Gen. Verm.* 75. t. 8. f. 3. 1788.
Loligo sagittata var. β. *Lamck. Mém. Soc. Hist. Nat. Paris*, 13. 1799, *Anim. s. Vert.* vii. 665.; *Blainv. Faun. Franç.* 15.; *Payraudeau, Cat. Moll. Corse*, 173. n. 353.; *Risso, Hist. Nat.* iv. 6. n. 8.; *Guérin, Icon. Règ. Anim.* t. 1. f. 5.; *Philippi, Enum. Moll. Sic.* 241. n. 2.; *Cantraine, Nouv. Mém. Acad. Brux.* xiii. 15. n. 1.
Calmar harper *Montfort, Buff. de Sonnin.* ii. 65. t. 14. 1805.
Loligo illecebrosa *LeSueur, Journ. Acad. Philad.* ii. 95. 1821? *Blainv. Dict Sc. Nat.* xxvii. 142., *Journ. de Phys.* 1823, p. 130.; *Féruss. D'Orb. Tab. des Céph.* 63. n. 5., *Céph. Acét. Loligo*, t. 7. from LeSueur.
Loligo harpago *Féruss. Dict. Class.* iii. 67. n. 3. 1823.
Loligo Brongniartii *Blainv. Dict. Sc. Nat.* xxvii. 142. 1823, *Journ. de Phys.* 1823, p. 130.; *Féruss. D'Orb. Tab. des Céph.* 63., *Céph. Acét.* t. 4. 1825.
Loligo piscatorum *La Pylaie, Ann. Sc. Nat.* iv. 319. 1825; *Féruss. D'Orb. Tab. Méth. Céph.* 63. n. 6., *Céph. Acét. Loligo*, t. 5.
Loligo Coindetii *Verany, Mem. Acad. Sc. Torino*, t. 1. f. 4. 1837.
Ommastrephes sagittatus *D'Orb. & Féruss. Ommastrephes*, t. 1. f. 1—10. rings, &c. 1839; *D'Orb. Paléont. univ.* t. 22. f. 12—16., *Paléont. étrang.* t. 19. f. 12—16., *Moll. Viv. et Fos.* i. 418. t. 29. f. 12—16.

Hab. Atlantic Ocean, Newfoundland, used in the codfishery. Mediterranean.

†† *Tentacular Arms with Cups in four Rows, those in the Centre of the middle Part rather larger.*

2. Ommastrephes æquipoda.

Body elongate, rather tapering behind. Fins rhombic, one third the length of the body. Tentacular arms short, naked half their length; club compressed, winged externally, with four series of regularly disposed cups, those of the sides and end equal-sized, the twentieth or twenty-second in the two central series of the middle part larger.

Loligo æquipoda *Rüppell, Giorn. del Gabin. di Messina*, xxvi. 1844.

Hab. Sicily.

a. Sicily, Messina. In spirits. From Dr. E. Rüppell's Collection.

††† *Tentacular Arms with two Series of small Cups at the Top.*

3. Ommastrephes todarus.

Body short, thick, nearly cylindrical, spotted with red. Fins half the length of the body, broad, together rhomboidal. Sessile arms unequal; rings of cups with seven distant very oblique cutting teeth on the higher side. Tentacular arms robust, with cups nearly to the base; scarcely clubbed; cups at the base in two series, in the middle in four series, middle ones larger, with the rings with twenty acute teeth all round; at the top in two series of minute cups.

Sepia loligo *Linn. Syst. Nat.* edit. xii. 1095. n. 4. 1767; *Gmel. Syst. Nat.* edit. 13. 3150. n. 4.; *Shaw, Nat. Miscell.* t. 363.
Loligo sagittata var. *a. Lamck. Mém. Soc. Hist. Nat. Paris*, 13. 1799; *Hist. An. s. Vert.* vii. 663.; *Féruss. Dict. Class.* iii. 67. n. 2.; *Carus, Icon. Sep. Nov. Acet. Phys. Med.* xii. 318. t. 30.; *Payraudeau, Cat. desc. Moll. Corse*, n. 352.
Calmar flèche *Montfort, Buff. de Sonnin. Moll.* ii. 56. 1805.
Calmar du Brésil *Montfort, Buff. de Sonnin. Moll.* ii. 56. 1805.
Loligo todarus *Rafinesque, Préc. Découv. Som.* 1814; *Féruss. Céph. Acét. Loligo*, t. 1.
Loligo Brasiliensis *Féruss. Dict. Class.* iii. 67. n. 3. 1823.
Loligo maxima *Blainv. Dict. Sc. Nat.* xxvii. 140. 1823, *Journ. de Phys.* 1823, 129.
Ommastrephes todarus *D'Orb. Céph. Acét. Ommastrephes*, t. 2. f. 4—10. 1839, *Paléont. univ.* t. 22. f. 3. 11. t. 23. f. 5, 6., *Paléont. étrang.* t. 19. f. 3—11. t. 20. f. 5, 6, *Moll. Viv. et Fos.* i. 423. t. 29. f. 3—11. t. 30. f. 5, 6.

Hab. Mediterranean.

** *The third Pair of sessile Arms with a narrow fleshy Fin supported by cross Ribs on the inner Edge of the ventral Side; second without Rudiments of Points on the Edge.*

4. Ommastrephes giganteus.

Body elongate, cylindrical superiorly, violet-coloured. Fins broad, occupying half the length, nicked in front, together transverse

rhomboidal, acute. Sessile arms, cups oblique, equal-sized; rings with acute teeth on the higher side, and smooth on the lower one. Tentacular arms naked one third their length; cups in two series, then in four; the eighteenth or twentieth central cup of the upper part very large, lateral one very small, longly pedunculed and very oblique, the tip compressed, with a narrow triangular patch of a few small cups in three or four series at the base, and two series at the end.

Pernetti, Hist. Voy. aux Malouines, ii. 76.? 1770.

Sepia tunicata *Molina, Hist. Nat. du Chili*, 173.? 1789; *Gmelin, Syst. Nat.* edit. 13. 3151. sp. 8.?; *Shaw, Nat. MS.* x. iv. t. 546.? from Montfort, Sonnini.

Sepia nigra *Bosc, Hist. Nat. des Vers*, i. 47.? 1802.

Calmar reticulé *Montfort, Buff. de Sonnin. Moll.* ii. 96. t. 21.?

Ommastrephes gigas *D'Orb. Voy. Am. Mérid. Moll.* 50. t. 4. 1835.

Ommastrephes giganteus *D'Orb. Céph. Acét.* t. 1. f. 11—13. rings, 1839, *Paléont. univ.* t. 23. f. 1—4., *Paléont. étrang.* t. 20. f. 1—4., *Moll. Viv. et Fos.* i. 425. t. 30. f. 1—4.

a. Valparaiso. Young? In spirits. Mr. Bridges's Collection.

b. Shell of *a*.

5. Ommastrephes Sloanii.

Body cylindrical, rather tapering behind. Fin rhombic, rather more than one third the length of the body. Sessile arms compressed; cups equal, oblique, in two rows; rings black, higher side with regular acute teeth, lower smooth; third pair acutely finned, with a narrow rayed membrane on the inner edge of the ventral side. Tentacular arms slightly keeled externally, base half-naked; cups of lower part small, in two rows, of middle four rows; the seventh pair of the central series largest; rings with distant teeth all round; of the lateral series small, longly pedunculed, and very oblique; of the apical portion small, in three or four rows, the smallest one nearly sessile.

Hab. Indian Ocean.

a. New Zealand, Waitemata. Small. In spirits. Presented by A. Sinclair, M.D.

b.? Var.? In spirits, adult. Mus. Sloane. Fin nearly half the length of the body.
Cycria *Leach, MS.* 1817.

c.? Shell of *b*. broken, dry; taken out by Dr. Leach.

*** *The second and third Pairs of sessile Arms with a broad membranaceous Fin on the inner Edge of the ventral Side* (protectrice de cupule, *D'Orb.*), *supported by radiating fleshy Rays arising from the Base of the Cups. Cups in two distinct Rows; ventral Part of the Mantle free from the Head.*

6. Ommastrephes Bartramii.

Body elongate, cylindrical, acuminate posteriorly, truncated anteriorly, longitudinally adorned above with a violet zone. Fins dilated, rhomboidal, acutely angled. Head short. Shell thin, elongated.

Cornet *Pernetti*, *Hist. Voy. aux Iles Malouines*, ii. 76. t. 11. f. 6. 1770.

Loligo Bartramii *LeSueur*, *Journ. Acad. Philad.* ii. 90. t. 7. 1821; *Féruss. Dict. Class.* iii. 67. n. 12.; *Blainv. Dict. Sc. Nat.* xxvii. 141., *Journ. de Phys.* 1823, 129.; *Féruss. D'Orb. Tab. des Céph.* 63., *Céph. Acét. Loligo*, t. 2. cop. LeSueur.

Loligo sagittatus *Blainv. Dict. Sci. Nat.* xxvii. 140. 1823, *Journ. de Phys.* 1823, p. 128.

Loligo vitreus *Rang*, *Mag. de Zool.* 71. t. 36. 1837.

Ommastrephes Bartramii *D'Orb. Voy. Am. Mérid. Moll.* 55. 1838, *Moll. des Antilles*, i. 59. n. 15., *Céph. Acét. Ommastr.* t. 2. f. 11—20. rings, *Paléont. univ.* t. 22. f. 1, 2. t. 23. f. 7, 8., *Paléont. étrang.* t. 19. f. 1, 2. t. 20. f. 7, 8., *Moll. Voy. et Fos.* i. 420. t. 29. f. 1, 2, t. 30. f. 7, 8.

Cycria sepiostem *Leach*, *MS.* 1817.

Ommastrephes cylindricus *D'Orb. Voy. Am. Mér. Moll.* 54. t. 3. f. 3, 4. 1835.

Hab. Atlantic Ocean, Mediterranean.

a. In spirits. ————————?

b, *c*, *d*, *e*. Cape of Good Hope. In spirits. Presented by Andrew Smith, M.D.

f. ————————? In spirits, bleached. Mus. Leach. The suckers in an alternating series?
Cycria sepiosteon *Leach*, *MS.* 1817.

g, *h*. ————————? In spirits. Voyage, Erebus and Terror. Presented by Capt. Sir James Ross, C. B. R. N.

i. ————————? In spirits. Mus. Leach.

j. ————————? In spirits. Mr. Bartlett's Collection.

k. ————————? In spirits. Presented by the Earl of Derby.

4* *The second and third Pairs of sessile Arms with a broad membranaceous Fin on the inner Edge of the ventral Side, supported by radiating fleshy Rays. Cups compressed, so as to be in a single Series; ventral Part of the Mantle fixed to the Head.*

7. Ommastrephes oualaniensis.

Body elongated, cylindrical. Pinnæ terminal, broad, transverse. Arms short, unequal, furnished with one row of cups. Shell elongate, narrow.

Ommastrephes oualiensis *D'Orb. Moll. Viv. et Fos.* i. 427.
Loligo oualaniensis *Lesson, Voy. de Coquille, Zool.* 240. t. 1. f. 2. 1830; *Féruss. Céph. Acét.* t. 3.
Loligo Vanicoriensis *Quoy & Gaim. Voy. Ast. Moll.* ii. 79. t. 5. f. 1, 2. 1833.
Loligo brevitentaculata *Quoy & Gaim.* l. c. 81. 1833.
Ommastrephes oceanicus *D'Orb. Céph. Acét. Calmars*, t. 21. Ommastrephes, t. 1. f. 14—16., rings, 1839.

Hab. Throughout the Indian Ocean.

a. ——————. In spirits. Mus. Leach.
b. ? Cape of Good Hope. In spirits, not in a good state. Presented by the Earl of Derby.
c. South Sea. In spirits, bad state. Presented by A. Menzies, Vancouver's Voyage.

§§ *Body transparent, tubercular beneath. One or two Cups on the second Pair of sessile Arms larger.*—Hyaloteuthis.

8. Ommastrephes pelagicus.

Body elongate, subcylindrical, smooth above, with scattered opaque tubercles, in eight cross lines beneath. Fins about a quarter the length of the body, very thin, nicked in front, together transverse, rhomboidal, with rounded angles. Sessile arms triangular; cups in two alternate lines, longly peduncled. Tentacular arms very slender, scarcely clubbed, with a series of peduncled cups. Diaphanous white, red-spotted. Shell very thin, very slender, without any ribs, with a small terminal cone.

Sepia pelagica *Bosc, Buff. de Déterv. Hist. Nat. Vers*, i. 46. t. 1. f. 1, 2. 1802.
Calmar pelagica *Montfort. Buff. de Sonnin. Moll.* ii. 86. t. 19. 1805.
Loligo pelagicus *Féruss. Dict. Class.* iii. 67. n. 7. 1823; *D'Orb. Tab. Céphal.* 63. n. 7, *Céph. Acét.* t. 18. f. 1, 2.

Ommastrephes pelagicus *D'Orb. Céph. Acét. Ommastrephes*, t. 1. f. 17, 18. animal, 1839, *Moll. Viv. et Fos.* i. 422.

Hab. Atlantic Ocean.

a. St. Lucia. In spirits, not good state. Presented by Miss R. Alexander.

3 § *Doubtful recent Species.*

9. Ommastrephes laticeps.

Body subgelatinous, bluish white, red, and brown, spotted, oval, elongate, ending in an acute point. Sessile arms equal. Tentacular arms with small cups. Fins thin, rounded, terminal.—A young animal.

Ommastrephes laticeps *D'Orb. Moll. Viv. et Fos.* i. 428.
Loligo laticeps *Owen, Trans. Zool. Soc. Lond.* t. 21. f. 6—10. 1836.
Cranchia pellucida *Rang, Mag. de Zool.* 67. t. 94. (1837).

Hab. Atlantic Ocean, near equator.

10. Ommastrephes arabicus.

Body round, gradually attenuating into an obtuse round tail. Fins rhomboidal, including half the body and the tail. Sessile arms with two rows of equal cups. Club of tentacular arms with five rows of cups, three middle rows largest; rings toothed. Shell narrow, cartilaginous.

Pteroteuthis arabica *Ehrenberg, Symbolæ Physicæ*, 1831.
Ommastrephes arabicus *D'Orb. Moll. Viv. et Fos.* i. 428. n. 12.

Hab. Red Sea, volcanic island of Ketumbal.

11. Ommastrephes Meneghinii.

Body ovate, conical, tapering behind. Fins posterior, half the length of the body, together oblong, rounded on the sides.

Loligo Meneghinii *Verany, Ceph. ex Sicilia*, t. 2. f. 1.

Hab. Sicily.

12. Ommastrephes Bianconii.

Body ovate, tapering behind. Fins posterior, together triangular, acute behind, and rounded at the outer upper angles. Shell narrow, lanceolate, wider above, contracted, and ending in a cone at the tip.

Loligo Bianconii *Verany, Ceph. ex Sicilia*, t. 2. f. 3.

Hab. Sicily.

13. Ommastrephes ? Eblanæ.

Loligo Eblanæ *Ball, Proc. Roy. Irish Acad.* 1839; *Thompson, Report of the Brit. Assoc.* 1844, p. 248.; *D'Orb. Moll. Viv. et Fos.* i. 353.

Not described.

Hab. Coast of Ireland.

14. Ommastrephes Gronovii.

Tentacular arms half as long as the body.

Sepia *Gronov. Zoophyl.* 244. n. 1028. 1781.
Loligo Gronovii *Férussac, D'Orb. Moll. Viv. et Fos.* i. 352. 1845.

Hab. Indian Ocean.

4 § *Fossil Species of Upper Oxford Clay.*

15. Ommastrephes angustus.

Shell elongate, depressed, with three ribs, dilated behind and before.

Onychoteuthis angusta *Munster, Jahrb.* 1830, 404. 458. 1836, 250. 630. 1837, 252.
Ony. Lichtensteinii *Munster, MS.* 1837.
Ony. sagittata *Munster, Jahrb.* 1837, 252. not Lamck.
Ommastrephes angustus *D'Orb. Paléont. univ.* t. 23. f. 9. 11. 1845, *Moll. Viv. et Fos.* i. 415.

Fos. Coralline layer of Upper Oxford, Solenhoffen.

16. Ommastrephes intermedius.

Shell elongate, conical above, convex, one-ribbed; behind narrow, lanceolate.

Onychoteuthis intermedia *Munster, Lehrb.* 1837, 252.
Omm. intermedius *D'Orb. Céph. Acét.* 40. 1841, *Paléont. univ.* t. 24. f. 1., *Moll. Viv. et Fos.* i. 416.

Fos. Lithographic slate, Solenhoffen.

17. Ommastrephes cochlearis.

Shell one-ribbed, dilated before and behind, behind lanceolate.

Onychoteuthis cochlearis *Munster, Lehrb.* 1837, 252.
Omm. cochlearis *D'Orb. Céph. Acét.* 40. 1841, *Paléont. univ.* t. 24. f. 2., *Moll. Viv. et Fos.* i. 417.

Fos. Lithographic slate, Solenhoffen.

18. Ommastrephes Munsterii.

Shell dilated, short, spoonlike before, dilated, and longitudinally rayed; behind dilated, blunt.

Omm. Munsterii *D'Orb. Paléont. univ.* t. 24. f. 3. 1845, *Moll. Viv. et Fos.* i. 417.

Fos. Lithographic slate, Solenhoffen.

Intermediate between *Ommastrephes* and *Geoteuthis*.

b. *Eyes covered with the Skin.*

Fam. V. LOLIGIDÆ.

Body subcylindrical, oblong, rounded behind. Fins on the sides of the hinder part of the back.

Head subcylindrical. Eye without eyelid, covered by the skin, simple above. Buccal membrane distinct, often furnished with cups. Ears with a transverse ridge.

Sessile *arms* with two rows of cups. Rings not convex externally, and provided with a narrow prominent edge on the middle of their width. Tentacular arms only partly contractile into the subocular cavity.

Siphuncle attached to the head by a double superior medial band.

Shell internal, horny, lanceolate, pennate or spathulate, without any air cells.

Loligidæ *Gray*, *Proc. Zool. Soc.* 1847, 285.
Loligidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 318.
Teuthidæ II. (pars) *Owen*, *Trans. Zool. Soc.* ii. 1836.

A. *Head separate from the Body. Mantle free all round. Shell pennate.*

a. *Shell as long as Back. Fin posterior, dorsal, rhombic.*

1. Gonatus. Cups of sessile arms in four rows. Tentacular arms with many rows of small cups, and a single hooked cup at the base. Shell pennate, edges thin.

2. Loligo. Cups of sessile arms in two rows; lateral membranes with cups on angles. Shell pennate, edge thin.

3. Teuthis. Cups of sessile arms in two rows; lateral membranes without cups. Shell pennate, edges thin.

b. *Shell as long as Back. Fin occupying the Sides of the Body.*

4. Sepioteuthis. Shell pennate, broad; edge sometimes thickened.

c. *Shell elongate, broad. Animal* ——— ? *Fossil.*

5. Teudopsis. Shell pennate, very broad below, narrow above.

6. Leptoteuthis. Shell lanceolate, very broad above, acuminate below.

7. Beloteuthis. Shell oblong, dilated and winged behind, acuminated above.

8. Belemnosepia. Shell broad, central part dilated and produced in front, winged behind.

d. *Shell shorter than the Back. Fin short, on the middle of the Sides of the Back.*

9. Rossia.

B. *Head attached to the Back of the Mantle by a broad cervical Band. Fin short, in the middle of the Sides of the Back. Shell narrow, with a central and two marginal Ribs.*

10. Sepiola. Cups of sessile arms nearly sessile.

11. Fidenas. Cups of sessile arms very longly peduncled.

A. *Head separate from the Body. Mantle free all round. Shell pennate.*

a. *Fin posterior, dorsal, rhombic. Shell as long as Back.*

1. GONATUS.

Body cylindrical, acute behind. Fins posterior, rhombic, connate behind, separate in front, elongated, linear. Ventral part of mantle with two interior marginal ridges, fitting into grooves on the base of the siphuncle, and a dorsal ridge and groove.—*Head* cylindrical; buccal membrane rounded, not lobed, without any cups. Eyes large, covered with the skin, with a small transparent spot; no eyelid.—Sessile *arms* curved, rounded externally; cups small, conical, contracted at the top, nearly uniform in size, in four series, all with small circular rings. Tentacular arms cylindrical, flattened internally and granular on the edges; club small, compressed, and finned at the tip, external; with ranges of small, nearly sessile, equal-sized cups (more numerous near the base), and with a large sessile cup armed with a hook in the middle of the lower part.—*Siphuncle* short, conical, without superior central band, and no interior valve.—*Shell* horny, thin, lanceolate, pennate, narrowed and extended in front, which is slightly margined on the sides.

Onycoteuthis sp. *Moller*, *Moll. Græn*, 3. 1842.

Moller describes the tentacular arms with cups to the base; this is not the case, but each side of the flattened inner surface is

covered with minute scales, perhaps indicating cups, especially near the club; and the outer series of the cups on the shorter arms are like the other, with circular rings and no hooks.

1. GONATUS AMŒNA.

Body cylindrical, tapering and acute behind. Fins rhombic, not one third the length of the back.

Onycoteuthis ? amœna *Moller*, *Ind. Moll. Græn.* 1.

Hab. Greenland.

a, *b*, *c*. Greenland. In spirits. From Dr. Moller's Collection.

2. LOLIGO.

Body smooth, elongate, subcylindrical, pointed behind, truncated in front. Fin on the hinder part of the sides of the back, united behind, and forming together a rhomb. Mantle with two ridges on the ventral side, fitting into two grooves on the base of the siphuncle, and with a dorsal groove fitting in a longitudinal ridge on the nape.—*Head* subcylindrical, narrowed behind the eyes; buccal membrane produced into angles; angles furnished with two series of small ringed cups. Eyes large, with a small lacrymal before the globe of the eye. Aquiferous openings, one on each side, between the third and fourth sessile arms, and six on the lips.—Sessile *arms* subulate, triangular, or compressed; third pair large, and keeled externally; cups oblique, in two alternate series, on a small foot; rings generally toothed on the widest side; the third and fourth arms shortly webbed, rest free. Tentacular arms only partly retractile, cylindrical, attached by a band to the lower arms. Club lanceolate, finned externally, with four or more rows of cups.—*Siphuncle* moderate, not sunk into a hollow, fixed by two central superior bands, and with an internal valve.—*Shell* horny, internal, occupying the whole length of the body, lanceolate, like a pen, narrow above, and with a central, longitudinal, keeled ridge, forming gutter within. —*Eggs* in subcylindrical masses crowded together on sea weeds. *Rang*, *Mag. Zool.* 1837, t. 47.

Τευθος and Τευθις *Aristoteles.*

Sepia sp. *Linn. Syst. Nat.*

Loligo *Plinius*, *Belon*, *Rondeletius*; *Lamarck*, *Mém. Soc. H. N.* 1799. *Syst. An. s. Vert.* 60. 1801; *Leach*, *Jour. Phys.* 1817; *D'Orb. Moll. Viv. et Fos.* i. 333.

Calmars plumes ou Pteroteuthis, sect. E. *Blainville*, *Malac.* 1825.

Teudopsis sp. *Munster.*

* *Shell very broad, pennate. Side very convex; upper Part slender.*

1. Loligo brevis.

Body cylindrical, obtuse posteriorly. Pinnæ short, transversely oval. Shell dilated, oblong, pennate, central-keeled, narrow in front.

Loligo brevis *Blainv. Journ. de Phys.* 1823, *Dict. des Sc. Nat.* xxvii. 145.; *Féruss. D'Orb. Tab. des Céph.* 64. n. 10., *Céph. Acét.* t. 15—24. f. 14—19. rings; *D'Orb. Voy. Am. Mérid. Moll.* 62., *Paléont. univ.* t. 11. f. 1., *Paléont. étrang.* t. 9. f. 1., *Moll. Viv. et Fos.* i. 345. t. 19. f. 1. shell.

Loligo brevipinna *LeSueur, Journ. Acad. Nat. Hist. Philad.* iii. 282. 1824; *Féruss. D'Orb. Tab. des Céph.* 64. n. 10., *Céphal. Acét.* t. 13. f. 4—6. from LeSueur, *Bullet. Univ. Sc. Nat.* iii. 92.

Hab. Brazil. Rio Janeiro.

2. Loligo Hardwickei.

Body oblong, rounded behind. Fins nearly two thirds the length of the body, rounded on the sides. Second pair of sessile arms rather the largest. Tentacular arms with numerous small cups, with smaller ones in four rows at the tip. Shell lanceolate, pennate, very broad, with a narrow central ridge; the anterior extremity narrow, about one fourth the entire length.

Loligo Hardwickei *Gray, Brit. Mus.* 1836.

Hab. Indian Ocean.

a. India. In spirits. Presented by General Hardwicke.
b. Shell of *a.* dry.
c. India. In spirits. Small. Presented by General Hardwicke.

Like *L. brevis*, but fins longer; differs from *L. Duvaucelli*, in the fins being longer, and the shell broader, with a narrow stem.

** *Shell pennate, lanceolate. Sides convex; upper Part moderate.*

3. Loligo magna.

Body oblong, subcylindrical, acuminated behind. Fins semirhomboidal, nearly two thirds the length of the sides. Sessile arms conico-subulate, with numerous rather large cups, and smaller ones at the end; cups oblique; rings with an eccentric opening, with eleven or thirteen elongate blunt teeth on the broad side, the rest smooth. Tentacular arms very long. Shell lanceolate, pennate, translucid; of the males elongate, acute; of the females broader and rather blunt.

Loligo magna *Rondeletius, Desc. Pisc. Marin.* lib. xvii. 506. cap. iv. 1554, *Hist. Nat. de Poiss.* 368. 1558; *Gesner, de Aquatilib.* lib. iv. 580.

Loligo major *Aldrovand. de Mollibus*, p. 67. 69, 70, 71. 1642; *Johnston, Hist. Nat.* lib. i. cap. iii. p. 10. t. 1. f. 4.; *Ruysch, Theat. univ. omn. Anim.* lib. iv. cap. iii. p. 8. t. 1. f. 4.

Sepia loligo *Linn. Mus. Adolph. Fred.* 94. 1754, *Syst. Nat.* ed. 12. 1095. n. 4. 1767, *Gmel. Syst. Nat.* edit. 13. 3150. n. 4.; *Scopoli, Hist. Nat.* 127.; *Pennant, Brit. Zool* iv. 53. t. 27. n. 43.; *Müller, Zool. Dan. Prod.* 2815.; *Gronov. Zooph.* 244. n. 1027., *Act. Helvet.* v. 379. n. 489.; *Herbst. Einleit. zur Ken.* 79. n. 2. t. 390.: *Bosc, Hist. Nat. des Vers*, 46.

Loligo biscale *Borlase, Nat. Hist. Cornwall*, 266. t. 25. f. 32. 1758.

Calmar commun *Montfort, Buff. de Sonnin. Moll.* ii. 7. 1805.

Loligo vulgaris *Lamck. Mém. de la Soc. d'Hist. Nat. de Paris*, 1799, p. 11., *Syst. An. s. Vert.* 60. 1801, *Hist. An. s. Vert.* vii. 667.; *Férussac, Dict. Class.* iii. 67.; *Blainv. Dict. des Sc. Nat.* xxvii. 143., *Journ. de Phys.*; *Carus, Icon. Sep. Nov. Act. Phys. Med. Acad. Cæs. Nat. Cur.* xii. 319. t. 31.; *Féruss. D'Orb. Tab. des Céph.* 63. n. 8.; *Payraud. Cat. des Moll. de Corse*, 173. n. 352.; *Risso, Hist. Nat. Eur. Merid.* iv. 6. n. 7.; *Blainv. Faun. Franç.* t. 3. f. . p. 15.; *Philippi, Enum. Moll. Sic.* 241. n. 1.; *Bouchard, Cat. des Moll. de Boul.* 71. n. 123.; *D'Orb. Moll. des Canaries*, 23. n. 7., *Paléont. univ.* t. 10. f. 1—12. t. 11. f. 2—4., *Paléont. étrang.* t. 8. f. 1—12. t. 9. f. 2—4., *Moll. Viv. et Fos.* i. 336. t. 19. f. 2—4.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 8. long arms, not good, 9, 10. 22. f. 1. 3. t. 23. f. 1—12.; *Potiez et Mich. Gall. des Moll. de Douai*, i. 8. n. 1.; *Cantraine, Malac. Nouv. Mém. Acad. de Brux.* xiii. 17. n. 3.; *Thompson's Report of the Brit. Assoc.* 1844, p. 248.

Loligo sagittata *Bowdich, Elem. of Conchol.* t. 1. f. 2. 1822.

Loligo pulchra *Blainv. Dict. des Sc. Nat.* xxvii. 144. 1823; *Férussac, D'Orb. Tab. des Céph.* 63.; *Blainv. Faun. Franç.* 17. a young female, *D'Orb.*

Loligo Rangii *Féruss. Céph. Acét. Calm.* t. 19. f. 4—6. 1833, on a bad drawing, *D'Orb.*

Loligo Berthelotii *Verany, Mém. Acad. Torin.* i. t. 6. (jun.) 1837.

Hab. Atlantic and Mediterranean.

a. Isle of Man. In spirits. Rev. J. Henslow. Mus. Leach.
b. ——————? ————? Mus. Sloane.
c. ——————? Half-grown. In spirits.
d. Brighton. Half-grown. In spirits. J. G. Children, Esq.
e. ——————? Eggs in spirits. Rev. G. E. Smith, Esq.
f. Base of head and jaws in spirits. Hastings.
g. Base of head and eyes in spirits. Torbay. Mus. Leach.

4. Loligo Pealii.

Body elongate, subconical, acuminated posteriorly. Fins rhomboidal, thick, occupying about three fifths of the length, together forming a rhomb much rounded on the sides, the front side rather shorter than the hinder. Sessile arms long; cups very oblique; rings on one side very high, with six or seven teeth, cut square at the end, other side flat, edged within. Tentacular arms long; cups unequal, very large, one rather oblique; their rings narrow, with alternate long and short very close acute teeth. Siphuncle long. Shell lanceolate, regular, narrow.

Loligo Pealii *Journ. Acad. Nat. Hist. Philad.* ii. 92. t. 8. f. 1, 2. 1821; *Blainv. Journ. de Phys.* 132., *Dict. d'Hist. Nat.* xxvii. 144.; *Féruss. Dict. Class.* iii. 67. n. 13.; *D'Orb. Tab. des Céph.* 63. n. 12.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 11. t. 20. animal, f. 17—27. rings; *D'Orb. Moll. Viv. et Fos.* i. 341.

Hab. ~~America~~, South Carolina ~~and New York~~.

a. Boston, North America. In spirits. Presented by W. Winstone, Esq.

5. Loligo Emmakina.

Body oblong, rounded behind. Fins half as long as the body, subrhombic, slightly rounded at the sides. Lips with one or two very small cups at the tip. The second and third pairs of sessile arms larger, and with much larger cups. Tentacular arms with numerous small cups, and smaller ones at the top. Shell lanceolate, thin, with a black central ridge; the anterior part broad, one fourth the length.

Hab. Para.

a. Para. In spirits. Presented by R. Graham, Esq.
b. Shell of *a.*

6. Loligo australis.

Body oblong, subcylindrical. Labial membrane with small cups at the tips. Fins rhombic, half the length of the body. Tentacular arms with many moderate-sized cups disposed in four rows, and with numerous smaller cups forming four rows at the tip. Shell broad, lanceolate, blackish brown; upper end rather broad.

a. Australia, Newcastle. In spirits. Presented by Rev. C. N. Wilton.
b. Shell of *a.* broken.

7. Loligo brasiliensis.

Body elongate, subcylindrical, acuminate behind. Fins short, half the length of the body, together rhomboidal with rounded angles, broader than long. Sessile arms triangular; ring oval, opening eccentric, higher side with six or eight broad teeth, cut square. Tentacular arms very long: cup unequal: ring of larger cups nearly regular, with acute equal-sized equal-distanced teeth; of smaller oblique, with very long distant teeth on the higher, and short close ones on the narrow side. Shell narrow, lanceolate, depressed, broad above, with an additional groove on each side in front.

Loligo brasiliensis *Blainv. Journ. de Phys.* 1823, *Dict. des Sc. Nat.* xxvii. 144.; *Féruss. D'Orb. Tab. des Céph.* 64., *Céph. Acét.* t. 12.; *D'Orb. Voy. dans l'Amér. Mérid. Moll.* 63., *Moll. des Antilles*, i. 38. n. 10., *Moll. Viv. et Fos.* i. 344.

Loligo Pocyianus *Féruss. Céphal. Acét. Calmars*, t. 19. f. 1, 2, 3. 1833.

Hab. Brazil, Island of Cuba.

8. Loligo Gahi.

Body elongate, subcylindrical, white, spotted with red. Fins terminal, short, one third the length of the body, rhomboidal, outer angle rounded, broader than long. Sessile arms very long; ring of cups very oblique, armed on the higher side with six broad blunt teeth. Tentacular arms with unequal cups: rings of larger cups oblique, armed with equal close blunt teeth; of the smaller ones oblique, with acute teeth, longest on the higher side. Shell elongate, dilated behind, produced, narrow in front.

Loligo Gahi *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 21. f. 3, 4.; *D'Orb. Voy. Am. Mérid.* v., *Moll.* 60. t. 3. f. 1, 2. 1835, *Paléont. univ.* t. 10. f. 12, 13., *Paléont. étrang.* t. 8. f. 12, 13., *Moll. Viv. et Fos.* i. 348. t. 18. f. 13, 14. ring of cups.

Hab. South America, Chili.

9. Loligo neglecta.

Body oblong, subcylindrical. Fin two thirds the length of the body, rhombic, rounded on the sides. Tentacular arms with eight or nine very large cups in two rows, and small ones at the ends. Shell lanceolate.

Loligo vulgaris *D'Orb. Moll. Viv. et Fos.* i. t. 18. f. 1. 12.

Hab. Atlantic.

a. Malta. In spirits.

b. Lisbon. In spirits. Presented by G. Hough, Esq.

c. South of Europe. In spirits, in a bad state. Presented by P. B. Webb.
d. Dalmatia. In spirits. Mr. Heckel's Collection.

10. Loligo Reynaudii.

Body elongate, larger in the middle, acuminate behind. Fins occupying more than two thirds the length of the body, elongate, rhomboidal. Sessile arms well rounded at the angles, short, unequal; second, third, and fourth pairs externally carinated; ring of cups with acute teeth on the higher side, diminishing in size to the other side. Tentacular arms large, cylindrical: cups very unequal, ten or twelve central very large; their rings smooth, of smaller lateral cups oblique, with acute teeth, longest on the higher side. Shell narrow, lanceolate; central groove rather produced above.

Loligo Reynaudii *Féruss. & D'Orb. Céph. Acét. Calmars*, t. 24. f. 1—8. 1839, *Paléont. univ.* t. 11. f. 3., *Paléont. étrang.* t. 9. f. 3., *Moll. Viv. et Fos.* i. 346. t. 19. f. 1—5.

Hab. Cape of Good Hope.

a. Cape of Good Hope. In spirits. Presented by G. Borodaile, Esq.
b. The shell of *a.* in spirits.

11. Loligo tricarinata.

Animal ————. Shell lanceolate, transparent, whitish, central groove deep; the blade with a slight raised ridge from the apex to the front part of the outer edge, near the commencement of the shoulder, producing three distinct keels on the convex side of the tip; the upper part of stem one fifth of the length. Length sixteen inches.

Hab. Isle of France.

a, *b*. Shells. Isle of France. Presented by Lady Francis Cole.

Differs from all the other shells of the genus by its large size, and the oblique groove from the tip to the upper margin. The shell of *L. Reynaudi* is only twelve inches long.

**** Shell lanceolate, sides straight, converging; upper part broad.*

12. Loligo Duvaucelii.

Body oblong, elongate. Fins irregular, rhombic, half as long as the body. Buccal membrane seven-lobed. Sessile arms, third pair largest, compressed, finned externally; cups of the lowest or

fourth pair of arms unequal, rings with eight or nine blunt truncated teeth. Tentacular arms much enlarged at the end, with rather unequal cups; the rings of the largest very narrow, with distant acute teeth, largest on the highest side; lateral cups oblique; rings with very unequal teeth, shortest on the lowest side. Shell pennate, enlarged, provided with three grooves above, oblong, lanceolate, dilated anteriorly and posteriorly.

Loligo Duvaucelii *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 14. t. 20. f. 6—16. 1826 and 1839; *D'Orb. Moll. Viv. et Fos.* i. 350.

Hab. India.

May be the young of *L. chinensis*, but the rings of the cups are very different from Férussac's figures.

13. Loligo chinensis.

Body oblong, subcylindrical, acuminated behind. Fins rhombic. Labial membrane with a few small cups. Sessile arms, third pair largest, compressed, finned; rings of the cups of the ventral or lower pair of arms with many close acute teeth. Tentacular arms with numerous rather large cups, and some very small ones at the tip; rings of cups with distant teeth. Shell translucid, lanceolate, rather dilated behind the central part, broad, tapering; upper part (called the *stem*) short broad.

Hab. China.

a, *b*. Canton market. Salted, now in spirits. Presented by T. Lay, Esq.
c, *d*. The shell of *a*, *b*.

14. Loligo Plei.

Body very elongate, cylindrical, acuminate posteriorly. Fins rhomboidal, about two fifths the length of the body, outer angle rounded. Sessile arms conico-subulate, very short, unequal; order of length, 3, 4. 2, 1; cups oblique; rings even, toothless. Tentacular arms, club small; cups unequal; rings of the largest smooth, toothless, of the smaller ones with acute points; of the small cups on the sides very oblique, with long teeth on the higher side. Shell elongate, very narrow, lanceolate, with three longitudinal grooves.

Loligo Plei *Blainv. Journ. de Phys.* 142., *Dict. Sc. Nat.* xxvii. 145. 1823; *Féruss. D'Orb. Tab. des Céph.* 64. n. 14.; *D'Orb. Moll. des Antilles*, i. 42. n. 11., *Paléont. univ.* t. 11. f. 6., *Paléont. étrang.* t. 9. f. 6., *Moll. Viv. et Fos.* i. 343. t. 19. f. 6.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 16. t, 24. f. 9—13.

Hab. West Indies, Martinique, and Cuba.

15. Loligo Alessandrinii.

Body oblong, subcylindrical, rounded behind. Fins about two fifths the length of the body, posterior, rounded. Cups of tentacular arms, unequal, large.

Loligo Alessandrini *Verany, Ceph. ex Sicilia*, t. 2. f. 2.

Hab. Sicily.

4 Doubtful recent Species.*

16. Loligo minima.

Body smooth, oblong, conical. Fins very small, at the end of body, semicircular, far apart. Sessile arms short, rather unequal; cups in two lines. Tentacular arms long, cylindrical, scarcely enlarged at the end, with two rows of small, alternate, peduncled cups. *Férussac.*

Loligo minima *D'Orb. Moll. Viv. et Fos.* i. 351.
Cranchia minima *Féruss. Cranchies*, t. 1. f. 4, 5. 1830.

Hab. Coast of Africa.

17. Loligo carunculata.

Body oblong, roundish. Fins rhombic. Tentacular arms with cylindrical or triangular caruncles on the inner side, and a few cups.

Sepia carunculata *Schneider, Beobacht. und Endeck. aus der Nat.* v. 42.; *Isert, Reise nach Guinea*, 7. 1788.
Loligo carunculata *Féruss. MS.; D'Orb. Moll. Viv. et Fos.* i. 352.

Hab. Gulf of Guinea.

18. Loligo lanceolata.

Loligo lanceolata *Rafin. Précis des Découv. Somiol.* 29. 14.: *D'Orb. Moll. Viv. et Fos.* i. 352.

Hab. Mediterranean. Not described.

19. Loligo osogadium.

Loligo osogadium *Rafin. Précis des Découv. Somiol.* 29. 1814; *D'Orb. Moll. Viv. et Fos.* i. 352.

Hab. Mediterranean. Not described.

5 Fossil Species. Upper Lias.*

20. Loligo pyriformis.

Shell oblong, smooth, attenuated in front, dilated behind.

Teudopsis pyriformis *Munster*, *Beitr. Petref.* vi. 58. t. 6. f. 3. 1843.
Loligo pyriformis *D'Orb. Paléont. univ.* t. 12.; *Moll. Viv. et Fos.* i. 336.

Fos. Upper Lias, Ohmden, Wurtemburg.

21. Loligo pyriformis.

Shell ovate, oblong, smooth, dilated behind, attenuated in front.

Loligo pyriformis *D'Orb. Paléont. univer.* t. 12. 1845, *Paléont. étrang.* t. 10., *Moll. Viv. et Fos.* i. 336.
Teudopsis pyriformis *Munster*, *Beitr. Petref.* vi. 58. t. 6. f. 3. 1843.

Fos. Upper Lias.

3. TEUTHIS.

Body elongate, acute behind, becoming produced and elongated in adult age, especially in the males. Fin rather behind the middle of the sides of the back, forming a heart-shaped expansion together.—*Head* subcylindrical. Labial membrane simple, not produced into angular lobes, and destitute of any cups. Shell lanceolate, narrow; rest like *Loligo*.

Teuthis *Aristoteles*, *de Anim.* iv. 1.; *Schneider*, *Samml. Verm.* 112. 1784.
Loligo sp. *Belon*, *de Aquat.* 339.; *Férussac*, *Lamck.*, *Leach*, *&c.*
Sepia sp. *Linn.*
Loligo β. *D'Orb. Moll. Viv. et Fos.* i. 337.

1. Teuthis parva.

Body subcylindrical, elongate, attenuated behind, and in the adult males produced beyond the fins. Fins separate, far apart in front, rhomboidal, subcordiform. Sessile arms with the oblique rings armed with blunt close teeth on the higher side. Tentacular arms long, clubbed; rings with very close blunt teeth. Shell lanceolate, broad, narrow in front.

Loligo parva *Rondelet. de Piscib.* lib. xvii. cap. v. 508. 1554; *Gesner*, *de Aquat.* lib. iv. 581.; *Bossuet de Nat. Aquat.* 200.; *Leach*, *Nat. Miscell.* iii. 138.; *D'Orb. Moll. Viv. et Fos.* i. 339.
Loligo minor, Rondeletii *Aldrovand. de Moll.* 72. 67. 1642; *Johnston*, *Hist. Nat. Exang.* lib. i. de Moll. cap. iii. p. 8. t. 1. f. 5.; *Ruysch*, *Theatr. Exang.* 8. t. 1. f. 5.
Sepia media *Linn. Syst. Nat.* ed. 12. 1095. n. 3. 1767; *Scopoli*, *Hist. Nat.* 27.; *Pennant*, *Brit. Zool.* iv. 54. t. 29. f. 45.; *Gmel.*

Syst. Nat. edit. 13. 3150. n. 3.; *Turton, Brit. Zool.* 119.; *Brug. Encyc. Méth.* t. 76. f. 9.

Calmar dard *Montfort, Buff. de Sonnin, Moll.* ii. 74. t. 16, 17. 1805.

Calmar contourné *Montfort, Buff. de Sonnin. Moll.* 82. t. 18. 1805.

Loligo subulata *Lamarck, Mém. Soc. Hist. Nat. Par.* i. 15. n. 3. 1799, *Hist. An. s. Vert.* vii. 664. n. 3.; *Bosc, Buff. de Deterv. Vers*, i. 46.; *Blainv. Journ. de Phys.* 131., *Dict. des Sc. Nat.* xxvii. 143.; *Férussac, Dict. Class.* iii. 67. n. 5.; *D'Orb. Tab. des Céph.* 63. n. 9.; *Payraudeau, Cat. Moll. de Corse*, 172. n. 350.; *Blainv. Faune. Franç.* 16.; *Potiez & Mich. Gall. Moll. de Douai*, i. 8. n. 2.; *Cantraine, Malac. Nouv. Mém. Acad. de Brux.* xiii. 17. n. 2.; *D'Orb. Céph. Acét. Calmars*, t. 17. t. 23. f. 19. 13—21.; *Thompson's Report of the Brit. Assoc.* 248.

Loligo spiralis *Féruss. Dict. Class.* n. 6. 1823; *D'Orb. Tab. des Céph.* 63. n. 10.

Loligo marmoræ *Verany, Mem. Acad. Sc. Torin.* i. t. 5. 1837, female.

Loligo Lamarmoræ *Verany, Cat. Invert. Genova*, 17.

Hab. Atlantic and Mediterranean, Coasts of France and England.

a. Brighton. Male; tail very long. In spirits. Presented by J. Rucker, Esq. Mus. Leach.

b. Shell of *a.* dry. ————. ————.

c. Hastings. Male, larger; tail longer. In spirits. Presented by J. G. Children, Esq.

d. Devon. Female, smaller; tail shorter. In spirits. Presented by W. E. Leach, M. D.

e. Coast of Holland. Female; tail shorter. In spirits. Presented by E. Engle, Esq.

f. Shell of *e.* dry.

g. Shell of *d.*

h. Shell. Coast of France. Presented by W. E. Leach, M. D. Young, the end of tail not produced. Fins about two fifths the length of the body.

Loligo vulgaris jun. *Féruss. Céph. Acet.* t. 22. f. 23. ?

i. Weymouth. Young. In spirits. Presented by Rev. Dr. J. Goodall.

j. Plymouth. Young. In spirits. Presented by W. E. Leach, M. D.

2. Teuthis sumatrensis.

Body short, cylindrical, attenuated behind. Fins regularly rhomboidal, truncated in front, rounded on the sides, nearly half the length of the body. Sessile arms moderate; rings with six or

eight very blunt teeth on the higher side; lower side smooth; third pair largest. Tentacular arms long, slender; club lanceolate; cups unequal; ring of the lateral cups armed with sharp teeth on the higher side. Shell oblong, spoon-shaped; upper part rather narrow and produced.

Loligo sumatrensis *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 13. f. 1—3. 1839; *D'Orb. Moll. Viv. et Fos.* i. 349.

Hab. Sumatra.

b. *Shell as long as Back. Fin occupying the Sides of the Body.*

4. SEPIOTEUTHIS.

Body oblong, rather depressed, subcylindrical. Fins narrow, extending the whole length of the sides of the back. Suspending buttons on the ventral surface, marginal, cartilaginous, linear, enlarged below; cervical ridge linear.—*Head* large, buccal membrane seven-lobed; buccal aquiferous openings six; external ear with a transverse crest, enlarged and curved up in front. —Sessile *arms* conical, subulate, unequal, finned externally; cups in two rows. Tentacular arms long, cylindrical; club enlarged and finned; cups in four alternated rows, with a thin membrane.—*Siphuncle* with two central superior bands.—*Shell* internal, horny, the length of the back, pennate, lanceolate, narrow in front, and with a central keel.

Sepia sp. *Lamck.* 1812.
Calmars Seiches (Loligo Sepioïdea) *Blainv. Jour. Phys.* 1823, *Malac.* 1825.
Chondrosepia *Leuckart*, 1828.
Sepioteuthis *Férussac*, *Tab. Céph.* 1825; *D'Orbigny*, *Moll. Viv. et Fos.* i. 319. t. 17.; *Desh.* in *Lamck. Hist.* xi. 242.
Les Sepioteuthes *Blainv. Malac.*

Synopsis of Sections.

* Buccal membrane provided with cups.
** Buccal membrane without any cups.

* *Buccal Membrane provided with Cups.*

† *Shell lanceolate, thickened on the Sides, obliquely up to the Shoulder.*

1. Sepioteuthis lunulata.

Body oval, oblong. Fins very broad, fleshy, most dilated behind the middle of the body. Sessile arms elongate, slender, unequal; order of length, 3, 2, 4. 1; cups depressed, oblique: rings with

strong, curved, distant teeth, longest on the highest side. Tentacular arms much clubbed, blunt; cups rather oblique, in four lines; rings of the larger central ones narrow, with very distant teeth. Shell lanceolate, thickened edge extending up to the shoulder, upper part short.

Sepioteuthis lunulata *Quoy & Gaim. Voy. Astrol. Zool. Moll.* ii. p. 74. t. 3. f. 8—13. ♀? 1832; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 3. f. 1. t. 6. f. 1—8.; *D'Orb. Moll. Viv. et Fos.* i. 323. t. 17. f. 5—8.

Sepioteuthis guinensis (Sepioteuthe de Dorei) *Quoy & Gaim. Voy. Astrol. Zool. Moll.* ii. 72. t. 3. f. 1—7. 1833.

Sepioteuthis dorensis *D'Orb. et Féruss. Céph. Acét. Sepioteuthis*, t. 3. f. 3. ♂? 1833.

Hab. New Guinea, Vanikoro.

2. Sepioteuthis australis.

Body oblong-elongate, cylindrical, truncated in front, acuminate and blunt behind. Fins very broad, very fleshy, subrhomboidal, broadest in the middle of the body. Sessile arms elongate, unequal; order of length, 3, 4, 2, 1. Tentacular arms very strong, compressed; club large; cups very large; rings of larger cups with very blunt distant teeth. Shell thin, flexible, lanceolate, widest at one third its length; central rib prominent, expansion commencing near its upper end.

Sepioteuthis australis *Quoy & Gaim. Voy. Astrol. Zool.* ii. 77. t. 4. f. 1. 1833, *Règne Animal du Cuv.* t. 3.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis.* t. 5. f. 5. t. 6. f. 15—21.; *D'Orb. Moll. Viv. et Fos.* i. 324. t. 17. f. 15.

Hab. New Holland.

Var. 1. Cups on labial membrane, three in one line.

a. Port-Jackson, Australia. Half-grown. In spirits. Presented by J. B. Jukes, Esq. n. 81.

b. The shell of *a*.

Var. 2. Cups on labial membrane, five in two lines.

c. Darnley Island, Australasia. Adult. In spirits. Presented by J. B. Jukes, Esq. n. 241.

3. Sepioteuthis mauritiana.

Body spotted with violet, cylindrical, acuminated behind. Fins narrow, widest at two thirds the length of the body. Sessile arms unequal; order of length 3, 4, 2, 1; cups oblique; rings with a number of acute, hooked, curved teeth. Tentacular arms slender; cups rather oblique; rings of the middle cups with acute, distant, hooked teeth, largest on the highest side.

Labial membrane with four or five cups at the angles (see *Férussac*, l. c. t. 5. f. 4. t. 7. f. 8.). Shell lanceolate, narrow, widest at one third the length, central ridge very strong. Sides thickened, and diverging to the upper extremity of the expansion.

Sepioteuthis mauritiana *Quoy & Gaim. Voy. Ast. Moll.* ii. 76. t. 4. f. 2—6. 1833; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 5. f. 1—4. t. 7. f. 1—5.; *D'Orb. Moll. Viv. et Fos.* i. 328.

Hab. Mauritius.

4. Sepioteuthis madagascariensis.

Body oblong, rounded behind. Fins broad, rounded. Cups of tentacular arms unequal, four-rowed. Labial membrane with a single cup at the tip of each angle. Shell lanceolate, rather broad, thickened on the side, upper part rather broad, blackish.

Sepioteuthis madagascariensis *Gray MS. B. M.* 1836.

Hab. Madagascar.

a. Madagascar. In spirits. Presented by J. E. Gray, Esq.
b. Shell of *a*. In spirits.

†† *Shell lanceolate, not thickened on the Sides.*

5. Sepioteuthis Lessoniana.

Body elongate, spotted with violet. Fins dilated posteriorly. Head broad; ear crests thick, broad. Sessile arms elongate, unequal; order of length, 3, 4, 2, 1; cups oblique; rings with distant acute teeth. Tentacular arms bluntly clubbed; cups large, very oblique; rings armed with acute, distant, curved teeth. Shell lanceolate, broadest in the middle; outer edge not thickened; central rib broad, extended in front, one fifth the length.

Sepioteuthis Lessoniana *Féruss. D'Orb. Tab. des Céph.* 65. 1825; *Lesson, Voy. de Coquille, Moll.* 241. t. 11.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 1. t. 6. f. 2—14.; *D'Orb. Moll. Viv. et Fos.* i. 326.

Hab. New Guinea.

a. Bay of Islands, New Zealand. Adult. (Rings of the cups black, nearly edentulous.) Antarctic Expedition.
b. Shell of *a*. broken. In spirits.
c, d. Bay of Islands, New Zealand. Young. (Rings of the cups brown, with numerous acute teeth.) Antarctic Expedition.

e. Shell of *c*. In spirits.
f. ? Shell dry. (Probably of this species.)

D'Orbigny, in his description, says the shell is without any lateral ridges or thickening, but his specific character is (*lateribus incrassatis*). Both our specimens have three or four small cups, forming a single line on the angles of the buccal membrane; and they show that the rings, on which M. D'Orbigny appears to place much reliance, change their character with the age of the specimens.

** *Buccal Membrane without any Cups.*

† *Shell very thin, not thickened on the Edges.*

6. Sepioteuthis sepioïdea.

Body ovate, oblong, spotted with violet, acuminated behind. Fins commencing some distance behind, outline subrhomboidal. Sessile arms subulate, slender, unequal; order of length 3, 1, 4, 2; dorsal pair compressed, other depressed; rings broad, with long acute teeth, smaller on their lower side. Tentacular arms slightly clubbed; cups in four lines, of the two central lines largest. Shell, very thin, transparent, very broad, lanceolate, edge not thickened; central ridge broad above, very narrow below.

Sepia officinalis var. b. *Lamck, Mém. de la Soc. d'Hist. Nat.* 1799, p. 7., *Hist. An. s. Vert.* xii. 668.
Seiche truitée *Montfort, Buff. de Sonnin. Moll.* i. 265. t. 6. 1805.
Loligo sepioïdea *Blainv. Journ. de Phys.* 1823, p. 133., *Dict. Sc. Nat.* xxvii. 146.
Sepia affinis *Féruss. D'Orb. Tab. Méth. des Céphal.* 66. n. 3. 1825.
Sepia biserialis *Blainv. Dict. Sc. Nat.* xlviii. 284. 1827.
Sepioteuthis biangulata *Rang, Mag. de Zool.* 73. t. 98. 1837.
Sepioteuthis sepioïdea *D'Orb. Moll. des Antilles*, i. 34. n. 9. 1838, *Moll. Viv. et Fos.* i. 320.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 7. f. 6—11. rings.

Hab. West Indies.

a. Honduras. In spirits.
b. Jamaica ?. In spirits. Mus. Sloane.
c. The shell of *b*., dry. Slightly thickened on the edge.

†† *Shell with the Margin thickened.*

7. Sepioteuthis Sloanii.

Sessile arms with only two rows of rings at the base. Fins widest in the middle of the body. Shell broad, lanceolate, with a very

broad thickened side; margin thicker on the inner side; central keel very broad, rounded above, thicker in the centre, without any grooves on the sides; gradually narrower in front.

Loligo Sloanii *Leach*, *MS. Brit. Mus.* 1817.

Hab. West Indies.

a. Honduras. In spirits.
b. The shell of *a*.
c. ———— ? In spirits. Mus. Sloane.
d. Shell of *c*., dry. Taken out by Dr. Leach.

8. Sepioteuthis Blainvilliana.

Body cylindrical, rather attenuated, but rounded behind. Fins fleshy, outline broader in the middle of the body. Sessile arms slender, long; rings oblique, thick, with long, close, acute teeth. Tentacular arms, cup moderately large; rings like those of the sessile arms. Under side of the buccal membrane tuberculously thickened. Shell lanceolate, very broad, thin, lateral expansion broadest in the middle of the length, strongly thickened on the sides of the extremity.

Sepioteuthis Blainvilliana *Féruss. & D'Orb. Sepioteuthis*, t. 2. 1839; *D'Orb. Moll. Viv. et Fos.* i. 327. t. 17. f. 1—4.

Hab. Java.

*** *Buccal Membrane unknown or undescribed.*

† *Fins most dilated on the Middle of the Body.*

9. Sepioteuthis Hemprichii.

Body compressed, attenuated posteriorly, rounded. Fins subequal, elliptical, enveloping the whole sides. Shell very soft.

Sepioteuthis Hemprichii *Ehrenberg*, *Symbolæ Physicæ*, *Céph.* n. 1. 1831; *D'Orb. Moll. Viv. et Fos.* i. 322.

Hab. Red Sea.

10. Sepioteuthis bilineata.

Body elongate, rhomboidal, surrounded with a blue mark. Fins dilated in the middle.

Sepia bilineata *Quoy & Gaim. Voy. Astrol. Zool.* ii. 66. t. 2. f. 1. 1833.
Sepioteuthis bilineata *D'Orb. & Féruss. Céphal. Acét. Sepioteuthis*, t. 4. f. 2. 1839; *D'Orb. Moll. Viv. et Fos.* i. 325.

Hab. New Holland.

11. Sepioteuthis major.

Body subcylindrical, attenuated posteriorly; lateral pinnæ produced to the whole length of the body, extended in the middle.

Sepioteuthis major *Gray, Spic. Zool.* 3. t. 4. f. 1. (Mus. Col. Surg.); *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 7. f. 12. 1828; *D'Orb. Moll. Viv. et Fos.* i. 330.

Hab. Cape of Good Hope. Mus. Col. Surgeons. The giant of the genus.

†† *Fins most dilated behind the Middle of the Body.*—Chondrosepia.

12. Sepioteuthis loliginiformis.

Shining fuscous colour above, flesh-coloured beneath, with small reddish points scattered all over; aliform membrane broader towards the posterior part, of a violet colour underneath.

Sepioteuthis loliginiformis *D'Orb. & Féruss. Céph. Acét. Sepioteuthis*, t. 4. f. 1. 1839; *D'Orb. Moll. Viv. et Fos.* i. 322.
Chondrosepia loliginiformis *Leuckart; Rüppell, Atlas zu der Reise*, t. 21. t. 6. f. 1. 1828.

Hab. Red Sea.

13. Sepioteuthis ————?

Sepioteuthis sinensis *D'Orb. Moll. Viv. et Fos.* i. 329. 1845, from *Encyclop. Japonaise*, art. *Jeou-iu* (Poisson mou).

c. *Shell elongate, pennate, broad. Animal unknown. Fossil.*

5. TEUDOPSIS.

Animal unknown.—*Shell* internal, horny, spathula-formed, very narrow, much prolonged in front and dilated behind, with a narrow medial rib; the lateral expansion broad, convex above, concave below, representing a kind of spoon at the hinder extremity.—*Fossil.* Upper Lias.

Teudopsis (les Teudopsides) *Deslongchamps, Mém. Soc. Linn. Norm.* 1835, v. 74. t. 3. f. 1, 2, 3.; *D'Orb. Moll. Viv. et Fos.* i. 359., *Paléont. Franç.; Desh.* in *Lamck. Hist.* xi. 241.
Beloteuthis sp. *Munster, Petref.* vi. t. 6. f. 1.; *Bronn, Gesch. der Naturg.* iii. 541.
Teuthopsis *Bronn, Gesch. der Nat.* iii. 541. misprint?

1. Teudopsis Bunellii.

Shell elliptical, smooth, attenuated in front, rather blunt behind, convex above, and concave below.

Teudopsis Bunellii *Deslongch. Mém. Soc. Linn. Norm.* v. 74. t. 3. f. 123. 1835 ; *D'Orb. Paléont. Franç. Ter. Jur.* i. 38. t. 1., *Paléont. univ.* t. 13., *Moll. Viv. et Fos.* i. 361. t. 20.
Teuthopsis Bunellii *Bronn*, l. c. 541.
T. Caumontii *Deslongch.* l. c. v. 76. t. 3. f. 45.

Fos. Upper Lias, Calvados. *Deslongch.*

2. Teudopsis ampullaris.

Shell elongate, lanceolate, smooth ; sides sinuated ; before elongate, slender, produced ; behind, dilated, blunt.

Teudopsis ampullaris *D'Orb. Pal. univ.* t. 14. f. 1, 2. 1845, *Pal. étrang.* t. 11. f. 1, 2., *Moll. Viv. et Fos.* i. 260.
Beloteuthis ampullaris *Munster*, *Beitr. Petr.* vi. t. 6. f. 1. ? 1843 ; *Bronn*, *Gesch.* 541.
Sepioteuthis gracilis *Munster*, *Beitr. Petr.* vi. t. 14. f. 5. ?

Fos. Upper Lias.

3. Teudopsis Bollensis.

Shell lanceolate, elongate, oblique, and broad on the sides, very narrow and prolonged in front, enlarged behind ; sides deeply sinuated ; central rib very distinct.

Teudopsis Bollensis *Voltz*, *Taschenb.* 629. 1836 ; *D'Orb. Paléont. univer.* t. 14. f. 3., *Paléont. étrang.* t. 11., *Moll. Viv. et Fos.* i. 361. t.
Loligo Bollensis *Schubler*, *Zeiten. Wurt.* 49. t. 37. f. 1. 1830, not t. 25. f. 6, 7.
L. Schubleri *Queenstedt*, *Wurt.* 254. 1843.
Beloteuthis Bollensis *Bronn*, l. c. 541.

Fos. Upper Lias, Wurtemburg.

6. LEPTOTEUTHIS.

Animal unknown.—*Shell* horny, internal, lanceolate, very broad and rounded in front ; the central rib is only slightly convex, and very broad.—*Fossil.* Oxford Clay.

Leptoteuthis *Meyer*, *Mus. Senskenb.* i. 202. 1824 ; *Bronn*, *Taschenb.* 1836, 56. ; *D'Orb. Paléont. univ.* t. 15., *Paléont. étrang.* t. 12. *Moll. Viv. et Fos.* i. 363. t. 21.

1. Leptoteuthis gigas.

Shell lanceolate, smooth, blunt in front, pointed behind.

Leptoteuthis gigas *Meyer*, *Mus. Lenskenb.* i. 202.; *Bronn*, *Taschenb.* 1836, 56.; *D'Orb. Moll. Viv. et Fos.* i. 363. t. 21.

Fos. Oxford clay, Solenhoffen.

7. BELOTEUTHIS.

Animal unknown.—*Shell* internal, horny, lanceolate, flat, acuminated in front, enlarged and winged behind, with a central convex, and two diverging lateral concave ridges in the concave beneath.—*Fossil.* Upper Lias.

Beloteuthis (pars) *Munster*, *Beitr. Petref.* vi. t. 5. f. 1. 1843; *D'Orb. Moll. Viv. et Fos.* i. 364. 1845, *Paléont. univ.* t. 16. 1845.
Sepiolites sp. *Munster*, 1843.
Teuthopsis sp. ? *Bronn*, *Ges. der Nat.* iii. 541.

1. Beloteuthis subcostata.

Shell compressed, lanceolate, attenuated in front, substriated above, and rather costated beneath.

Beloteuthis subcostata *Munster*, *Beitr. Petref.* 61. t. 5. f. 2. t. 6. f. 2.; *D'Orb. Moll. Viv. et Fos.* i. 363., *Paléont. univ.* t. 16., *Paléont. étrang.* t. 13.
B. substriata *Munster*, l. c. 62. t. 5. f. 3. t. 6. f. 5.
B. acuta *Munster*, l. c. 63. t. 6. f. 4.
B. venusta *Munster*, l. c. 64. t. 14. f. 2.
B. ampullaris (pars) *Munster*, l. c. t. 5. f. 1. not t. 6. f. 1.
Sepialites substriatus *Munster*, l. c. 76. t. 6. f. 6. ?

Fos. Upper Lias, Wurtemburg.

8. BELEMNOSEPIA.

Animal unknown.—*Shell* internal, horny, thin, broad; central part gradually increasing in breadth to the more or less produced broad front part, and with a rounded expansion on each side behind; the lines of growth of the central part transverse, and of the lateral wing arched and concentric; the hinder part convex above and concave beneath.—*Fossil.* Upper Lias and Oxford Clay.

Belemnosepia *Agassiz*, *Lehrb.* 1835, 627. 1836, 36. in *Buckland*, *Geol.* i. 374. note, 1836, ed. 2. 414. 1839; *Desh.* in *Lamck. Hist.*

xi. 245.; *D'Orb. Paléont. Franç. Ter. Jur.* 1842, *Moll. Viv. et Fos.* i. 433.; *Mantell, Medals of Creation*, ii. 468. fig.
Belopeltis *Voltz, Bull. Soc. Géol.* ii. 40. 1840, *Mém. Soc. Strasb.* iii. 1843.
Loligosepia *Queenstedt, Flolzeberg Wurtemb.* 252. 1843, not Blainv.
Geoteuthis *Munster, Beitr.* vi. 68. 1843; *D'Orb. Moll. Viv. et Fos.* i. 161.
Paleosepia *Théod.* 1844.
Onychoteuthis sp. *Munster, Lehrb.* 1830.
Sea Pens, or Loligo sp. *Buckland, Geol.* i. 374.
Celæno ? sp. *Owen, Trans. Phil. Soc.* 1844.

1. Belemnosepia lata.

Shell dilated, compressed, broad, and truncated in front, with broad entire wings behind.

Geoteuthis lata *Munster, Beitr.* vi. t. 7. f. 1. 1843.
Belemnopeltes emarginata *Voltz, MS.*
Belemnosepia lata *D'Orb. Paléont. univ.* t. 25. f. 1. t. 26. f. 1., *Moll. Viv. et Fos.* i. 436. t. 31. f. 1.

Fos. Upper Lias, Wurtemburg.

2. Belemnosepia flexuosa.

Shell oblong, lanceolate, produced, truncated, and narrow lanceolate behind; sides with elongate narrow wings.

Geoteuthis flexuosa *Munster, Beitr. zur Petref.* vi. t. 9. f. 2. 1843.
Belemnosepia flexuosa *D'Orb. Paléont. univ.* t. 25. f. 2. t. 26. f. 2. 1846, *Moll. Viv. et Fos.* i. 437. t. 31. f. 2.

Fos. Upper Lias, Wurtemburg.

3. Belemnosepia Agassizii.

Shell elongate, conical, dilated before, attenuated behind. Wings on sides elongate, broad.

Teudopsis Agassizii *Deslongch. Mém. Soc. Lin. Norm.* v. 72. t. 2. f. 15. 1835.
Belemnosepia Agassizii *D'Orb. Paléont. univ.* t. 25. f. 3. 1846, *Moll. Viv. et Fos.* i. 437. t. 31. f. 3.

Fos. Lias, Calvados.

4. Belemnosepia Orbignyana.

Shell dilated, compressed, broad in front. Wing of hinder part broad, sinuous.

Geoteuthis Orbignyana *Munster*, *Beitr. Petref.* vi. t. 7. f. 2. 1843.
Belemnosepia Orbignyana *Orb. Paléont. univ.* t. 26. f. 3. 1846, *Moll. Viv. et Fos.* i. 438.

Fos. Upper Lias, Wurtemberg.

5. Belemnosepia sagittata.

Shell elongate, dilated in front, lanceolate, with short lateral wing behind.

Geoteuthis sagittata *Munster*, *Beitr. Petref.* vi. t. 7. f. 3. t. 8. f. 4. t. 14. f. 4. 1843.
Belemnosepia sagittata *D'Orb. Paléont. univ.* t. 27. 1846, *Moll. Viv. et Fos.* i. 439.
G. angusta *Munster*, *MS.*

Fos. Upper Lias, Wurtemburg.

6. Belemnosepia hastata.

Shell narrow, elongate, narrow in front, lanceolate, blunt, with narrow wing behind.

Geoteuthis hastata *Munster*, *Beitr. Petref.* v. t. 8. f. 3. 1843.
Belemnosepia hastata *D'Orb. Paléont. univ.* t. 28. f. 1. 1846, *Moll. Viv. et Fos.* i. 439.

Fos. Upper Lias, Wurtemburg.

7. Belemnosepia speciosa.

Shell like B. Bollensis, but narrower and more conic.

Geoteuthis speciosa *Munster*, *Beitr. Petref.* vi. t. 8. f. 2. 1843.
Belemnosepia speciosa *D'Orb. Paléont. univ.* t. 28. f. 2., *Moll. Viv. et Fos.* i. 440.

Fos. Upper Lias, Wurtemburg.

8. Belemnosepia Bollensis.

Shell dilated, oblong, dilated in front, truncated; side wing rather narrow, sinuous.

Loligo Aalensis *Schubler*, *Zeiten. Wurtemb.* 34. t. 25. f. 4. 1830.
Loligo Bollensis *Schubler*, *Zeiten. Wurtemb.* 34. t. 25. f. 5. 7. 1830.
Fossil Sea Pens *Buckland*, *Min.* t. 28. f. 6, 7. t. 29. f. 1, 2. t. 30. 1836.
Belopeltis sinuatus *Voltz*, *Bull. Soc. Géol.* ii. 40. 1840, *Mém. Soc. Strasb.* iii. 1843. from Zeiten.
Geoteuthis Bollensis *Munster*, *Beitr. Petref.* vi. t. 14, f. 3. t. 8. f. 1.
Belemnosepia Bollensis *D'Orb. Paléont. univ.* t. 29. f. 1. 3. 1846, *Moll. Viv. et Fos.* i. 440.

Embalmed Calamary (Celæno, *Munster*) *Owen, Phil. Trans.* 1844, 84. t. 4. f. 2.??

Fos. Upper Lias, Wurtemburg and Lyme Regis.

9. BELEMNOSEPIA OBCONICA.

Shell conical, oblong, dilated in front, truncated; side wing narrow.
Geoteuthis obconica *Munster, Beitr. Petref.* v. t. 9. f. 1. 1843.
Belemnosepia obconica *D'Orb. Paléont. univ.* t. 29. f. 45. 1846, *Moll. Viv. et Fos.* i. 441.

Fos. Upper Lias, Franconia.

d. *Shell horny, shorter than the Back. Fin short, on the Middle of the Sides of the Back.*

9. ROSSIA.

Body separate at the neck, purse-shaped, rounded behind, truncated before. Cervical band none. Mantle supported in front or below by a small tubercle, fitting into an elongate cartilaginous groove at the base of the siphuncle, above at the nape a central ridge received into a groove. Fins oval, oblong, broad on the middle of the sides of the back.—*Head* large, depressed, narrowed behind the eyes. Eyes large, lateral, superior, with an inferior eyelid. Buccal membrane short, six-lobed. Ears behind, a little below the eyes.—Sessile *arms* strong, thick, conical, subulate, unequal; cups fleshy, globular, sessile, in two or four series; rings horny, convex, toothless; third and fourth pair distinctly webbed. Tentacular arms retractile into a large subocular cavity, long, cylindrical, with clubbed and finned ends; without any protective membrane for the cups, with pedicelled spherical cups on two alternating lines; their rings swollen externally and toothed on the upper edge. —*Siphuncle* without any superior band at its junction with the head.—*Shell* horny, lanceolate, only occupying the anterior half of the body.

Rossia *Owen*, **J. Ross, Voy. Append.* 1835, *Trans. Zool. Soc.* 1828; *Weigm. Arch.* i. 298. 1836; *D'Orb. Céphal. Acép.* 1839, *Moll. Viv. et Fos.* i. 235. 1845; *Gray, Syn. B. M.* 92. 1842, *Proc. Zool. Soc.* 1847. 205; *Moller, Ind. Moll. Groen*, 3.; *Loven, Ind. Moll. Scand.* 3.

Sepiola sp. *Gervais & Van Beneden, Bull. Acad. Brux.* 1838; *Delle Chiaje, MS.; Desh.* in *Lamck. Hist.* ed. 2. xi. 221. 1845.

* *Cups of sessile Arms similar, equal.*—Rossia.

† *Cups of sessile Arms in two alternating Rows beneath, and four or more at the Tip. Fins contracted at their Junction with the Body.*

1. Rossia palpebrosa.

Body oblong. Head nearly as large as the body, swollen at the eyes. Fins placed anteriorly. Sessile arms short, very unequal; order of length, 3, 4, 2, 1; cups in two rows at the base, and in many rows at the end of the arms, with the rings on the inner side of the sphere. Tentacular arms elongate, with very many cups, which are smaller near the tip.

Rossia palpebrosa *Owen, Ross's Voyage, Nat. Hist.* 93. t. B. f. 1. and t. c. 1834; *D'Orb. Céphal. Acét.* 247. n. 2.; *Rossie*, t. 1. f. 6—10., *Moll. Viv. et Fos.* i. 256.

Sepiola palpebrosa *Gervais & Van Beneden, Bull. de l'Acad. Roy. de Bruxelles*, v. n. 7. 1838.

Hab. Atlantic Ocean, Prince Regent's Inlet, North Sea.

2. Rossia macrosoma.

Body smooth, short, rounded, broader than long. Fins thin, short, semicircular, larger in front. Head short. Sessile arms subulate, rather compressed, elongated, unequal; order of length, 3, 4, 1, 2; cups spherical, in two distinct rows at the base, and four at the tip; rings large, smooth, and entire. Tentacular arms slender; cup at the base of the club large, gradually diminishing in size, and augmenting in number, towards the end. Shell lanceolate, two thirds the length of the body.

Sepiola macrosoma *Delle Chiaje, MS.; Gervais et Van Beneden, Bull. de l'Acad. de Brux.* vi. n. 1. 1838.

Rossia macrosoma *D'Orb. & Féruss. Céphal. Acét.* 245. *Sepiola*, t. 4. f. 13—24. 1839, *Moll. Viv. et Fos.* i. 257. t. 11.

Hab. The Mediterranean, near Naples.

†† *Cups of sessile Arms in two Rows. Fins wide at the Junction with the Body.*

3. Rossia subulata.

Body rather elongate, blunt behind. Fins rounded, largest at their junction with the body. Sessile arms unequal; relative length, 4, 3, 2, 1; cups alternate in two rows, shortly pediceled.

Tentacular arms long, slender.—Body, head, and arms pale rose-coloured, red-dotted.

Sepiola subulata *Eyd. MS.; Gervais et Van Beneden, Bull. de l' Acad. Roy. de Bruxelles*, v. n. 7. 1838 (Note sur le genre Sepiola.)

Rossia subulata *D'Orb. & Fér. Céphal. Acét.* 249. n. 3. 1839, *Moll. Viv. et Fos.* i. 259.

Hab. Indian Ocean, Manilla.

** *Cups of lateral three Pairs of Arms very large, peduncled, distant; Cups of other arms small, crowded, equal. Tentacular arms tapering.*—Heteroteuthis.

4. Rossia dispar.

Body ovate, rounded, and rather tapering behind. Fins roundish, rather behind the middle of the back. Sessile arms rounded externally; four upper pairs slightly webbed together, third and fourth slightly webbed on the side, ventral pair separate below; cups small, globular; third pair finned, with a very few large globular cups. Tentacular arms slender; club scarcely marked, compressed externally, with very minute cups placed in several series.

Rossia dispar *Rüppell, MS. Brit. Mus.*

Sepiola dispar *Rüppell*, in *Giorn. del Gabin. di Messina*, xxvi. 1845.

Hab. Sicily.

a, *b*. Sicily. In spirits. From Edward Rüppell, M.D.

*** *Cups peduncled.*

5. Rossia ? Owenii.

Cups large, distinct, on long peduncles, arranged in three rows, those of the centre row not half the size of the side ones; on the first pair of arms more numerous, more equal in size, and smaller, than on the other arms.

Rossia Owenii *Ball, Trans. Roy. Irish Acad.* 1843; *Thompson's Report of Brit. Assoc.* 1843, p. 248.; *D'Orb. Moll. Viv. et Fos.* i. 259. n. 4.

Hab. Ireland, Dublin Bay. Ball, 1839.

6. Rossia ? Jacobi.

Larger than R. Owenii; arms shorter; cup smaller. Mouth

with a hexagonal membrane, with a ridge running to the second, third, and fourth pairs of arms; on the first pair it passes upon the web between the first pair of arms, where it bifurcates and runs on each side.

Rossia Jacobi *Ball. Trans. Roy. Irish Acad.* 1843; *Thompson's Report of Brit. Assoc.* 1843, p. 248.; *D'Orb. Moll. Viv. et Fos.* i. 259. n. 5.

Hab. Ireland, Dublin Bay. Dr. A. Jacob, 1840.

B. *Head attached to the Back of the Mantle by a broad cervical Band. Fin short, in the Middle of the Sides of the Back.*

10. SEPIOLA.

Body short, purse-like, rounded behind, truncated before. Cervical band broad. Mantle with an oblong ridge near the edge fitting into a groove on the sides of the base of the siphuncle. Fins on the middle of the sides of the back far apart, contracted at the base.—*Head* short. Eyes large, prominent; inferior eyelid distinct. Buccal membrane short, six- or seven-lobed. Ear simple, beneath and behind the eye. Aquiferous apertures two; one brachial, between the third and fourth pairs of arms; the second lacrymal, very small, above and behind the eye. Buccal apertures none.—Sessile *arms* conical, subulate, unequal; cups spherical, longly pedicelled; rings horny oblique, convex externally; third and fourth pairs slightly webbed at the base. Tentacular arms retracted into a suborbical cavity, elongate, and finned, with very many very small longly pedicelled cups in eight series.—*Siphuncle* with an internal valve, and no central upper band at its junction with the head.—*Shell* horny, sublinear, narrow at the top, wider in front, and rather dilated behind, not more than half the length of the back, with a medial groove and thickened edges.

Sepiola *Rondelet. Piscis et Aquat.* i. 510. 1554; *Aldrovand. de Moll.* cap. 5. 1606.

Sepiola *Leach, Zool. Misc.* iii. 137. 1817, *Journ. Phys.* lxxxvi. 674. 1817; *Féruss. et D'Orb. Céphal. Acét.* 1839; *D'Orb. Moll. Viv. et Fos.* i. 215. 1845; *Risso, Eur. Merid.* 1826; *Blainv. Malac.* 1825; *Grant, Trans. Zool. Soc.* i. 1838; *Owen, Trans. Zool. Soc.* ii. 1838; *Gervais et Van Beneden, Bull. Acad. Brux.* v. 1838, vi. 38. 1839.

Calmars sect. A. ou Sepioles *Blainville.*

Sepia sp. *Linn. Gmelin, Goldfuss.*

Loligo sp. *Lamarck*, 1799 ; *Férussac*, *Tabl. Syst.* 24.
Sepiolæ (les Sepioles) *Risso*, *Eur. Merid.* iv. 7. 1826, not Lamck.
Sepiolidæ (pars) *Leach*, *Zool. Misc.* iii. 137. 1817.
Octopodia sp. *Schneid. Samml. Verm. Abh.* 116. 1784.
Sepiolidea *D'Orb. Moll. Viv. et Fos.* i. 249.

* *Body and Head smooth internally. Cartilage of Mantle narrow, linear, oblong.*
† *All the sessile Arms with two alternating Rows of Cups to the Tip.*

1. Sepiola Rondeleti.

Body oblong, smooth, rounded behind. Fins oval. Sessile arms short, rather unequal; proportion of length, 2, 3, 4, 1 ; cups globular, in two close, regular, alternating, series ; rings entire. Tentacular arms short ; club small, compressed, obliquely striated externally ; cup spherical, very small, with eight larger ones irregularly disposed, and with entire rings ; the third pair of arms the least rounded externally ; ventral pair compressed, keeled. Shell with a medial groove and thickened margin.

Sepiola *Rondeletius*, *de Piscibus*, lib. xvii. cap. x. p. 519. 1554. *Bossuet*, *de Aquatil.* 204. ; *Johnston*, *Hist. Nat. de Piscib.* lib. i. cap. iii. t. 1. f. 8. p. 8. ; *Ruysch*, *Theatr. Evang.* t. 1. f. 1.
Sepiola Rondeleti *Gesner*, *de Aquatil.* lib. iv. 855. 1558 ; *Aldrovand. de Moll.* lib. v. 63. 1642 ; *Leach*, *Nat. Miscell.* iii. 138. (1817) ; *Rang*, *Mag. de Zool.* 70. t. 95. ; *Gervais et Van Beneden*, *Bull. Acad. Roy. Bruxelles*, v. n. 7. p. 8. ; *D'Orb. et Féruss. Céph. Acét.* 330. n. 2., *Sepioles*, t. 1. f. 1—6. t. 2. f. 3, 4. t. 3. f. 6—9. ; *Potiez et Michaud*, *Gal. des Moll.* i. 7. n. 1. ; *D'Orb. Moll. Viv. et Fos.* i. 249. n. 2. t. 10. f. 13. ; *Thompson*, *Rep. Brit. Ass.* 245. 1843.
Sepia Sepiola *Linn. Syst. Nat.* edit. 12. 1096. n. 5. 1767 ; *Scopoli*, *Aserv. Zool.* p. 128. ; *Herbst. Eniseit. zur Kennt. der Gew.* 80. n. 4. ; *Gmel. Syst. Natur.* edit. 13. 3151. ; *Wulfen*, *Nov. Act. Phys. Med. Acad. Nat. Cur.* viii. 235. ; *Martens*, *Reise nach Venedig*, ii. 436.
Loligo Sepiola *Lamck. Mém. de la Soc. d'Hist. Nat. de Paris*, 16. 1799, *Anim. s. Vertèb.* vii. 664. n. 4. ; *Penn. Brit. Zool.* iv. 54. t. 29. f. 46. 1777 ; *Barbut*, *Worms*, 76. t. 8. f. 5. ; *Brug. E. M.* t. 77. f. 3. ; *Blainv. Dict. Sc. Nat.* xxvii. 184. ; *Carus*, *Icon. Sepiar. Nov. Act. Acad. Nat. Curios.* xii. 318. t. 29. f. 2, 3. ; *Payraudeau*, *Cat. des Moll. de Corse*, 173. n. 353. ; *Philippi*, *Enum. Moll. Sic.* 241. n. 3.

Sepiola vulgaris *Grant, Trans. Zool. Soc. Lond.* i. 77. 1833.
Sepiola Grantiana *Féruss. Sepioles*, t. 2. f. 3, 4., *Magas. de Zool. Bull.* p. 66. 1835.
Sepiola Devigniana *Gervais & Van Beneden, Bull. Acad. Brux.* p. 10. 1838.

Hab. British Channel and the Mediterranean.

a, *b*, *c*. Medway, near Nore. In spirits. Presented by Rev. J. Henslow. Mus. Leach.
d. Berwick-upon-Tweed. In spirits. Presented by G. Johnston, M. D.
e, *f*. Mediterranean. In spirits. Presented by R. B. Webb, Esq.
g. Sandgate. Not good state. In spirits. Presented by Rev. G. E. Smith.
h. Hastings. In spirits. Presented by W. E. Leach, M. D.
i, *j*. ——— ? In spirits. ——— ? Some of the cups of the sessile arms larger than the rest.

2. Sepiola Oweniana.

Body elongate, ovate, smooth, rather pointed behind. Fins very small, far apart, nearly circular. Sessile arms elongate, slender, subulate, unequal; order of their length, 2, 3, 4, 1; cups oblique, rather compressed, rounded, with a large opening, in two distinct alternating lines; rings entire. Tentacular arms very long, very slender; club small; cups very crowded, and exceedingly minute; aquiferous pores two. Shell ——— ?

Sepiola Oweniana *D'Orb. & Féruss. Céph. Acét.* 229. n. 1., *Sepioles*, t. 3. f. 1—5. 1839; *D'Orb. Moll. Viv. et Fos.* i. 252. n. 5.

Hab. ——— ?

3. Sepiola ? Japonica.

Body oblong. Fin widened. Sessile arms unequal, dorsal short, lateral ones longest; cups in two separate alternating lines, with a clavate muscular tube up between the cups. Tentacular arms long, cylindrical, scarcely enlarged at the end; cups very minute, only one fourth of the size of those of the sessile arms. Shell ——— ?

Tilesius, Krusenstern, Voy. t. 88. f. .
Sepiola Japonica *D'Orb. & Féruss. Céph. Acét.* 234. n. 3. 1839; *D'Orb. Moll. Viv. et Fos.* i. 251. n. 3.

Hab. Japan.

†† *The sessile Arms with two Rows of Cups; the lower Pair with eight Rows of smaller Cups at the Tip.*

4. Sepiola atlantica.

Body oblong, purse-shaped, rounded behind. Fins oval, far apart. Sessile arms short, unequal; proportionate length, 3, 2, 4, 1; cups small, oblique, in two series; lateral arms larger; fourth or the ventral pair with two rows at the base, seven or eight crowded rows of smaller cups at the tip. Tentacular arms rather long. Shell linear, narrow, gradually enlarged upwards, and spathulate behind the tip, sides thickened.

Loligo Sepiola *Bouchard, Cat. des Moll. Mar. du Boulonnais*, 71.? 1835.

Sepiola vulgaris *Gervais & Van Beneden, Bull. de l'Acad. de Bruxelles*, iv. n. 7. 1838, not Grant.

Sepiola atlantica *D'Orb. & Féruss. Céphal. Acét.* 235. n. 4., *Sepioles*, t. 4. f. 1—12. 1839; *D'Orbigny, Moll. Viv. et Fos.* i. 247. t. 10. f. 1—12. 1845.

Sepiola oceanica *D'Orb. Moll. Viv. et Fos.* t. 10. f. 13. 1845.

Hab. Atlantic Ocean.

M. D'Orbigny, at page 247., describes the dorsal pair of sessile arms as having four rows of cups, but he does not mention this in the longer description. The British specimens in the British Museum do not belong to this species.

††† *The sessile Arms with eight Rows of Cups.*

5. Sepiola stenodactyla.

Body short, rounded behind. Fins subcircular. Head large. Sessile arms thick and short, rather unequal; cups large, spherical, in seven or eight rows, rather irregularly disposed. Tentacular arms long, slender; club indistinct; cups very minute.—Purple, arms cross banded.

Sepiola stenodactyla *Grant, Trans. Zool. Soc. Lond.* 1833, i. 84. t. 11. f. 1, 2. and f. 6. apex of sessile arms; *Gervais et Van Beneden, Bull. de l'Acad. de Bruxelles*, v. n. 7. from Grant; *D'Orb. et Féruss. Céph. Acét.* 238. n. 5., *Sepioles*, t. 2. f. 1, 2. 6.; *D'Orb. Moll. Viv. et Fos.* i. 252. n. 4.

Hab. Mauritius. Mus. Zool. Soc.

The name *stenodactyla* must have originated in a mistake, for Dr. Grant expressly says the arms are proportionally much thicker and shorter than in *S. vulgaris*, l. c. p. 85.

* *Body and Head tubercular beneath; internal Cartilage of Mantle broad, contracted in the Middle.* — Sepiolidea *D'Orb.*

6. Sepiola lineata.

Head and body smooth above, strongly tubercular on the sides beneath, tubercle with a horny centre, dorsal edge of mantle bearded. Body short, rounded. Sessile arms short, quadrangular, rather unequal; two upper pairs slenderer and shorter, and webbed at the base; cups hemispherical, in two alternate regular series on the base, and then small and in four series; their rings very high, and with an external border. Tentacular arms slender, lanceolate at the end, and with twenty series of very numerous, exceedingly small, crowded cups.—Whitish, with longitudinal blue or opake white lines.

Sepiola lineolata *Quoy & Gaim. Zool. Voy. Ast.* ii. 82., *Moll.* t. 5. f. 8—13. 1832; *Gervais et Van Beneden, Bull. de l'Acad. de Bruxelles*, v. 7.

Sepioloïdea lineata *D'Orb. & Féruss. Céphal. Acét.* 240. t. 3. f. 10—18. 1834, *Ann. Sci. Nat.* xvi.; *D'Orb. Moll. Viv. et Fos.* i. 242. t. 9.

Hab. Jervis Bay, New Holland.

11. FIDENAS.

Body oblong, rounded behind, united to the head by a broad cervical band; a linear cartilage on each side, in the base of the siphuncle. Fins oblong, on the sides of the back. — *Head* moderate. Eyes large, lateral. — Sessile *arms* subulate, roundish, elongated, tapering, free, except the third and fourth pairs, which are united together by a short web. Cups very small, globular, two-rowed, longly pedunculated; peduncles suddenly contracted, very thin near the cup. Tentacular arms destroyed? —*Siphuncle* very large, long, free from the head.—*Shell* ——— ? or none.

Is this the same as, or allied to, *Rossia subulata?* but the cups are said to be supported on a short pedicel; has that species a cervical band? for the bone is described as like *Sepiola*.

1. Fidenas Penares.

Hab. Indian Ocean.

a. Singapore. In spirits. Not good state, lost the pedunculated arms.

Suborder II. *SEPIAPHORA.*

Shell cellular, calcareous; back hard; cavity filled with laminæ, separated by numerous cells.—*Head* united to the mantle by a broad cervical band. Mantle attached behind, free in front, and with two internal cartilaginous longitudinal ridges fitting into cartilaginous grooves in the base of the sides of the siphuncle. Fin as long as the sides of the back.

Teuthomorpha (Sepiæ) (pars) *Bronn, Gesch. der Nat.* iii. 588.

Fam. VI. SEPIADÆ.

Body short, oval or rounded, depressed. Fins lateral, separated from one another behind by a neck or free space.

Head broad. Eyes lateral. Lower eyelid distinct. Auricular ridges none. Buccal membrane without cups.

Sessile *arms* with four rows of cups; horny ring of the cups uniformly convex, and narrowed above and below, without any external ridges. Tentacular arms entirely retractile into the cell at their base.

Siphuncle without any superior band at its junction with the head, with an internal valve.

Shell internal, as long as the back, calcareous, filled with irregular cells, without any siphon.

Sepidæ (pars) *D'Orb. Moll. Canar.* 20. 1837, *Moll. Viv. et Fos.* i. 237. 1845.

Sepiana *Gray, Proc. Zool. Soc.* 1847, 205.

Sepiadæ *Owen, Trans. Zool. Soc.* ii. 2. 1838; *Gray, Syn. B. M.* 1842. 92.

Sepioïdæ *Agassiz, Nomencl.*

Sepiacea (pars) *Desh. Ency. Méth.* ii. 1830.

Sepiæ (les Seiches) *Risso, Eur. Merid.* iv. 7. 1826.

1. SEPIA.

Body large, ovate or oblong, fleshy, depressed, rounded behind, with a rounded projection on the front of the dorsal edge. Fin narrow, lateral, bordering the whole side of the body, and separate behind. The ventral part of the mantle furnished with an oblique oblong tubercle fitting to a concavity in the sides of the

lower part of the siphuncle; the cervical part under the front of the shell, with longitudinal central ridge fitting into a groove on the back.—*Head* very large, wider than long, without any crest or cervical plaits. Eyes large, with an inferior eyelid, and a lacrymal opening in the front of the folds of the eyelid. Ear at the lower part of the globe of the eye. Buccal aquiferous openings six, between the base of the arms and the lips; buccal membrane seven-lobed, the two lower lobes least marked.—Sessile *arms* short, strong; dorsal pair compressed, lateral pair depressed, third pair with a membranous crest; protecting membrane of the cups very short; cups spherical, fleshy, oblique peduncled, in four rows; fourth pair free, rest united by a slight web at the base. Tentacular arms entirely retractile, long, slender; terminal club large, with an external fin; horny ring convex externally, contracted above and below.—*Siphuncle* large, short, without any band at the junction to the head, and with a large internal valve.—*Shell* (Sepiotaire *Blainv.*) embedded in the back of the animal, as long as the body, calcareous, depressed, ovate or oblong, externally convex, rugose, hard, with a horny edge and acute tip. The cavity is filled with very oblique layers of a cellular spongy substance, sometimes leaving a small, simple, conical cavity under the apex.

Sepia *Plinius.*

Sepia sp. *Linn. Cuvier, Anat. Comp.* 1800, *Règ. Anim.* ii. 365. 1817.

Sepia *Lamck. Syst.* 59. 1801; *Blainv. Malac.* 1825; *Gray, R. Zool. Soc.* 1847, 205.; *D'Orb. Moll. Viv. et Fos.* i. 261. 1845.

Octopodia sp. *Schneider.*

Sæpia *Dumeril, Zool. Anat.*

Shell. Beloptera A. *Blainv. Malac.* 621. 1825, *Belemn.* 110. 1837.
Sepiostera *Desh. Lyell, Princ. Append.* 40. 1833.
Sepiostaria *Blainv. Belemn.; Voltz, Mém. Soc. Strasb.* 1830.
Belosepia *Voltz, Belemn.* 23. 1830.

The shells of the species may be arranged as follows:—

* *Shell oblong.*

† *Apex very blunt.* S. officinalis, n. 1. *Férussac, Céph. Crypt.* t. 2. S. latimanus, n. 5. t. 12. f. 1, 2.

†† *Apex produced.* S. vermiculata, n. 7. t. 13.*
S. Rouxii, n. 2. t. 19.
S. Rappiana, n. 6. t. 10. S. Bertheloti, n. 12. t. 11. t. 23.
S. Hierredda, n. 4. t. 13. t. 18.
S. aculeata, n. 15. t. 5. and t. 25. S. Blainvillii, t. 21.
S. rostrata, n. 22. t. 8. t. 26.

††† *Apex very blunt, and produced.* S. tuberculata, n. 6. t. 6. (S. papillata, t. 3. S. mammillata, t. 4.*) S. Lefebrei, n. 8. t. 24. f. 1. 6.

** *Shell oblong, produced behind.*

S. inermis, n. 20. t. 6.* (S. sinensis, n. 20.) S. ornata, n. 19. t. 22. Microcheirus, n. 21. (inermis, t. 20.)

*** *Shell very narrow behind, and arched.*

† *Apex simple.*

S. australis, n. 18. t. 12. f. 7—11. S. Rupellaria, n. 16. t. 13. f. 10. 13. S. capensis, n. 28. t. 7. f. 113. S. Orbigniana, n. 27. f. 5. S. australis, n. 23. t. 7. f. 4.

†† *Apex dilated.*

S. elegans, n. 26. t. 8. f. 1—5. S. elongata, n. 17. t. 24. f. 7—10.

The shell of *S. officinalis* and *S. apama* have the inside of the front part, which is next to the back of the animal, covered with a hoodlike horny plate, apparently formed of the continuation of the cartilaginous margin which has not been observed in the other species.

See Longchamps (*Mém. Soc. Lin. Norm.* v. 1835, 79.) and Buckland (*Bridgewater Treat.* ii. t.) on the structure of the shell.

Synopsis of the Sections of the Genus.

§ Sessile Arms with small equal Cups, all in four regular series.

* Tentacular Arms with five or six series of unequal-sized Cups.

** Tentacular Arms with five or six series of subequal moderate-sized Cups.

3 * Tentacular Arms with twenty series of unequal-sized Cups.

4 * Tentacular Arms with eight or ten series of small equal Cups.

§§ Sessile Arms with small equal Cups; the two dorsal Arms with only two rows, rest with two and four.

§§§ Sessile Arms with unequal-sized large and small Cups.

N.B.—When the animal is unknown, the species is arranged next to that whose shell it most resembles.

§ *Sessile Arms with small equal Cups placed in four regular alternating Lines.*

* *Tentacular Arms with unequal-sized Cups placed in five or six Lines.*

1. SEPIA OFFICINALIS.

Body ovate, depressed, smooth. Head with two elongated, and some smaller beards above. Sessile arms short, strong, unequal; order of length, 4, 3, 2, 1; ring of cups smooth, entire. Tentacular arms much enlarged, with six alternating lines of cups, the five central cups much larger; rings of the larger cups smooth, of the smaller ones toothed. Shell ovate, compressed, wrinkled above, semi-cartilaginous on the edge and behind, rounded posteriorly; when young the apical beak is conical, prominent, and the upper part of the last internal plate occupied; half the beak becomes immersed in the cartilages, and the plate is diminished to one third the length of the cavity in the adult.—Back purple, with darker cross bands, forked, and with small white spots on the side.

Sepia officinalis *Linn. Fauna Suecica*, n. 2106., *Syst. Nat.* edit. 12. 1095. n. 2.; *Gmel. Syst. Nat.* edit. 13. 3149. n. 2.; *Scopoli, Hist. Nat. Obs. Zool.* 127; *Pennant, Brit. Zool.* iv. 55.; *Gronovius, Zoophyl.* 244. n. 1021.; *Brug. Encyc. Méth.* t. 76. f. 56.; *Wulfen, Nov. Act. Phys. Med. Berlin*, viii. 379.; *Lamarck, Mém. Soc. Hist. Nat. Paris*, 4., *Syst. des Anim. s. Vert.* 59., *Hist. An. s. Vert.* vii. 668.; *Bosc, Hist. Nat. des Vers*, i. 45. n. 1.; *Leach, Nat. Miscell.* iii. 138.; *Carus, Icon. Sep. Nov. Act. Nat. Cur.* xii. 317. t. 28.; *Martens, Reise nach Venedig*, ii. 436.; *Payrad. Cat. Moll. de Corse*, 173. n. 54.; *Risso, Hist. Nat. Eur. Merid.* iv. 3. n. 10.; *Blainv. Dict. Sc. Nat.* xlviii. 264., *Faune Franç.* 18.; *Deshayes, Enc. Méth. Vers*, iii. 944. n. 1.; *Bouchard, Cat. Moll. Mar.* 72. n. 125.; *Potiez et Mich. Gal. Moll. de Douai*, i. 8. n. 1.; *Philippi, Enum. Moll. Sic.* 241. n. 1.; *D'Orb. Moll. des Canar.* 20. n. 4., *Céphal. Acét.* 260. n. 1., *Seiches*, t. 1, 2, 3. f. 1—3. t. 17. f. 12., *Paléont. univ.* t. 3. f. 1—5. t. 4. f. 13—16., *Paléont. étrang.* t. 3. f. 1—5. t. 4. f. 13—16; *Cantraine, Malac. Nouv. Mém. de Brux.* xiii. 14. n. 1.; *D'Orbigny, Moll. Viv. et Fos.* i. 272. t. 12. f. 1—5. t. 13. f. 13—16.

Seiche commune *Montfort. Buff. de Sonnin. Moll.* i. 171.

Sepia rugosa *Bowdich's Elements of Conchology*, t. 1. f. 1.

Sepia *Schneider, Sammlung Verm.* 108.

Hab. Atlantic Ocean, Coasts of Europe and Africa, Mediterranean.

a. Torbay, Devonshire, England. In spirits. Presented by J. R. Griffith, Esq.

c. ——————— ? In spirits. Not good state.
d. Torbay. Egg. In spirits. Presented by J. R. Griffith, Esq.
e. Torbay. Young, one day old In spirits. Presented by J. R. Griffith, Esq.
f. ——————— ? In spirits. Not good state.
g, *h.* Shell. Adult. Dry. Coast of England.
i. Shell. Adult. Dry. Malta. Presented by Miss E. Attersoll.

2. Sepia Rouxii.

Body ovate, smooth, acuminate in front, rounded posteriorly. Fins broad. Head smooth. The buccal membrane provided with five prominent lobes; lower part thicker, fleshy, without any lobes; the lower bands not marked externally. Sessile arms elongate, unequal; order of length, 4, 3, 2, 1; with four rows of cups furnished with rings armed with long acute teeth on their border side. Tentacular arms with six rows of cups. the two middle rows composed of seven very large cups, armed with rings, with short teeth all round. Shell ovate, oblong, wrinkled and tuberculated, thickened underneath posteriorly, with a short blunt beak, and a very thick convex diaphragm occupies all the extremity of the cavity.

Sepia Rouxii *D'Orb.* in *Féruss. Céph. Acét.* 271. n. 3., *Seiches*, t. 19.; *D'Orb. Moll. Viv. et Fos.* i. 290.

Hab. Red Sea, Indian Ocean, Bombay.

a. Tunis, Africa. Adult. In spirits. Presented by Mr. Louis Frazer.
b. The bone of *a.*
c, *d.* Tripoli, Africa. Young. In spirits. Presented by J. Ritchie, Esq.
e, *f.* The bones of *c*, *d.*
g, *h*, *i.* The bones dry. Young.
j. Dalmatia. Young. In spirits. From Mr. Heckel's Collection.
k. The shell of *j.*

3. Sepia Vicellius.

Blackish, smooth. Sessile arms thick; lower rather larger; cups rather large, in four regular series; rings entire. Tentacular arms moderate; clubs moderate, slightly finned behind; cups smaller than those of the sessile arms, in five rows, the five or six of those in the central line about treble the size, with dark rings, very minutely and regularly bluntly toothed on the edge. Shell oblong, rather attenuated above, dilated behind; apex

blunt, not produced beyond the horny part at its base; back rugose, subconcentric.

Hab. ———— ?

a. In spirits.
b. Its bone dry.

4. Sepia Hierredda.

Body ovate, depressed, rather tuberculate. Fins broad. Head with a beard on each eye. Ear with a longitudinal and a transverse ridge. Sessile arms thick, unequal; order of their length, 4, 3, 1, 2; rings of cups with small teeth. Tentacular arms with very unequal cups in six lines, the middle ones being very large; the rings entire. Animal brown and yellow marbled, white-spotted, and with a series of six white lines on the sides. Shell ovate, compressed, wrinkled above, acuminated anteriorly, rounded posteriorly, with a long curved beak; the last plate in all ages occupied half the cavity.

Sepia Hierredda *Rang, D'Orb. et Féruss. Seiches*, t. 13., *Magaz. de Zool.* 75. t. 100.; *D'Orb. Moll. des Canar.* 21. n. 5., *Moll Viv. et Fos.* i. 278.; *D'Orb. et Féruss. Céph. Acét.* 268. n. *Seiches*, t. 13. t. 18.

Hab. Atlantic Ocean, Coast of Africa, Cape of Good Hope Island of Teneriffe.

5. Sepia latimanus.

Body ovate, smooth, truncated in front, pointed behind. Fins narrow, blue-edged. Sessile arms slender, quadrangular, elongate, unequal; order of length, 4, 3, 2, 1; with four rows of cups; horny rings with very fine, close teeth. Tentacular arms dilated, strongly palmated, with five lines of cups, with six or eight very large ones, having their horny rings plaited on the edge. Shell oblong, rounded anteriorly, obtuse posteriorly, longly and acutely beaked.

Sepia latimanus *Quoy & Gaim. Zool. Voy. Astrol.* ii. 68., *Atl. Moll.* t. 2. f. 2. 11. 1832; *D'Orb. et Féruss. Seiches*, t. 12. f. 1—6. t. 17. f. 16, 17. (1839); *D'Orb. Moll. Viv. et Fos.* i. 291.
Sepia Rappiana *Féruss. Pl. des Seiches*, n. 10. (1834).

Hab. Indian Ocean, New Guinea, and the Celebes.

6. Sepia tuberculata.

Body ovate, tuberculated; tubercles very unequal, divided into lobes. Fins narrow. Head tuberculated on the back, sides, and round the eyes, smooth below. Sessile arms short, [illegible]

unequal; length, 4, 3, 2, 1; with four rows of cups, supported by rings. Tentacular arms thickly clubbed, with five rows of cups; four of them much larger, with oblique, entire rings. Shell very depressed, ovate, nearly equally round at each end, above smooth, and cartilaginous on the sides and ends; beneath very concave.

Sepia tuberculata *Lamck. Mém. Soc. Hist. Nat. Paris*, i. 9. t. 1. f. 1—6., *Hist. An. s. Vert.* 2d edit. vii. 668. n. 2.; *Bosc, Buff. de Deterv. Vers*, i. 45.; *Montfort, Buff. de Sonnin. Moll.* i. 274. t. 7.; *Blainv. Dict. Sc. Nat. Crypt.* f. 2—6., *Malacolog. Atlas*, t. 1. f. 2—6.; *Deshayes, Enc. Méth.* iii. 945. n. 2.; *D'Orb. et Féruss. Céphal. Acét. Seiches*, t. 3 ter, t. 4 bis, t. 6. t. 17. f. 13—15.; *D'Orb. Paléont. univ.* t. 3. f. 11., *Moll. Viv. et Fos.* i. 281. t. 12. f. 11.

Sepia papillata *Quoy & Gaim. Voy. Ast. Zool.* ii. 61. t. 1. f. 6—14. *Féruss. et D'Orb. Céph. Acét. Sepia*, t. 3.

Sepia mamillata *Leach, MS.; Féruss. et D'Orb. Céph. Acét. Sepia*, t. 4*.

Hab. Cape of Good Hope.

a. Shell of adult. Dry. Imperfect. Cape of Good Hope.

Sepia 7. Sepia vermiculata.

Body ovate, smooth, acute anteriorly. Fins broad, largely separated behind, dotted with red. Head large. Sessile arms short, thick at their base, unequal; length, 4, 3. 2, 1; with four rows of cups, with entire rings. Tentacular arms cylindrical, very long; club flattened, with very numerous cups, eight or ten larger than the rest, with entire rings. Shell oblong, ovate, bluntly beaked posteriorly.

Sepia vermiculata *Quoy & Gaim. Voy. Ast. Moll.* ii. 64. t. 1. f. 1—5. (1832); *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 3. bis; *D'Orb. Moll. Viv. et Fos.* i. 284.

S. Hierredda var.? *D'Orb.* l. c. 285.

Hab. Cape of Good Hope.

8. Sepia Lefebrei.

Animal ——— ? Shell ovate, oblong, rounded at each end, concentrically wrinkled above, nearly flat above, strongly gibbous and elevated in the middle beneath, with a border all round.

Sepia Lefebrei *D'Orb. Céphal. Acét.* t. 24. f. 1—6. (shell), *Paléont. univ.* t. 4. f. 5—6., *Moll. Viv. et Fos.* i. 288. t. 13. f. 5—6.

Hab. Red Sea.

Chiefly differs from *L. gibbosa* in the shell appearing to be broader.

9. Sepia gibbosa.

Animal ———— ? Shell elongate, boat-shaped, rounded at each end, gibbous beneath, obtuse.

Sepia gibbosa *Ehrenberg, Symbolæ Phys. Sepia*, n. 2.; *D'Orb. Moll. Viv. et Fos.* i. 287.

Sepia gibba *D'Orb.* l. c. 288, 289.

Hab. Red Sea.

10. Sepia apama.

Animal ———— ? Shell oblong, elongate; the posterior part much produced, subacute, with a strong callosity at the posterior edge of the cavity. Apex blunt, rugose; anterior extremity rounded, covered with strong cartilaginous side; central portion rather convex.

Hab. Australia.

a. Port Adelaide. Shell. Dry.

Most like *S. Lefebrei*, but the posterior extremity is much more produced and subacute, and the inner side of the central part is not convex.

** *Cups of tentacular Arms in five or six Series, subequal, moderate-sized.*

† *Shell oblong.*

11. Sepia Lycidas.

Animal ———— ? Sessile arms with four series of rather large equal cups. Tentacular arms elongate: club distinct, slightly finned behind, with five series of cups; those of the middle of the arms equal-sized, nearly the size of those on the sessile arms; of the lower and upper end smaller. Shell oblong, rather elongate; slightly produced above; narrowed, produced, and rounded behind. Apex blunt; cavity with a strong, raised, rounded ridge on each side behind; disk convex, with a broad central concavity extending nearly the whole length.

a. Animal salted, from Canton market. Presented by T. Lay, Esq.

b. The shell (dry, rather broken) from *a*.

†† *Shell elongate, narrow.*

12. Sepia Bertheloti.

Body oblong, elongated, subcylindrical, smooth, blunt behind, and pointed in front. Fins narrow, broader behind. Ears simple. Sessile arms long, slender, unequal; order of length, 4, 2, 1, 3; cups in four rows, equal-sized. Tentacular arms long, slender, finned; cups in five rows, the central one largest, with oblique rings, toothed all round. Shell elongate, very narrow, finely wrinkled above, acuminated in front, and with a long acute beak, and wings on the side behind. — Purplish, with oblong pale spot on the side.

Sepia Bertheloti *D'Orb. & Féruss. Monog. des Céph. Acét.* t. 11. t. 23. 1835; *D'Orb. Moll. des Canar.* 21. n. 6. t. 11., *Moll. Viv. et Fos.* i. 277.

Hab. Atlantic Ocean, Teneriffe.

13. Sepia plangon.

Body oblong. Fins narrow, pale. Back of mantle much produced in front. Sessile arms rather thick; cups small, distant, in four rows. Tentacular arms slightly clavate, with a few very small, subequal cups. Shell elongate, narrow, dilated behind. Apex elongated, acute, recurved; cavity concave behind, with a strong, shelly, diverging ridge on each side, with a wide central groove.

a. Port Jackson. In spirits. Dr. J. Robertson, Antarctic Expedition.
b. The shell of *a.* dry.
c. Australia. Shell. Dry. Presented by A. Sinclair, M. D. R. N.

Shell most like *S. Orbignyanus*, but the inner part has not the ridges.

3* *Tentacular Arms with unequal-sized Cups placed in ten Series.*

14. Sepia Savignii.

Body ovate, oblong; back with triangular beards, forming a series on the sides; smooth below. Fins broad, as long as the body, equal. Sessile arms thick, very unequal; order of length, 4, 3, 2, 1; rings of cups toothed. Tentacular arms clubbed, with ten lines of cups, those of the two middle lines larger, with toothed rings. Shell – ——— ?

Sepia officinalis *Audouin, Expl. Somm. des Pl. d'Egypt*, t. 5. t. 1. f. 3. 1827.
Sepia Savignyi *Blainv. Dict. des Sc. Nat.* xlviii. 285. 1827; *D'Orb. et Féruss. Céphal. Acét. Seiches*, t. 4.; *D'Orb. Moll. Viv. et Fos.* i. 287.
Sepia Savigniana *Féruss. Seiches*, t. 4. 1828.
Sepia Pharaonis *Ehrenberg, Symb. Phys. An. Mollusc. Céphal. Sepiacea*, n. 1. 1831.

Hab. Red Sea.

4* *Tentacular Arms finned, with numerous, small, equal-sized Cups, placed in eight or ten Lines.*

† *Shell very narrow behind.*

15. Sepia aculeata.

Body ovate, rounded, smooth, rather pointed behind. Fins broad, thick, commencing rather behind the front edge. Sessile arms elongate, unequal; order of length, 4, 3, 2, 1; cups globular, in four series, with rings minutely toothed all round. Tentacular arms with very small cups in ten or twelve lines, with distant acute teeth on the ring. Shell ovate, oblong, tubercularly wrinkled, depressed, rounded at the ends, and with a long, straight, acute beak, convex beneath in front, and concave behind.

Sepia aculeata *Van Hasselt, MS.; D'Orb. et Féruss. Céph. Acét. Seiches*, t. 5. bis, t. 25.; *D'Orb. Moll. Viv. et Fos.* i. 296.

Hab. Indian Ocean, Java.

16. Sepia Rupellaria.

Animal ———— ? Shell elongated, very narrow, depressed, much arched behind, prolonged and acuminated in front: bisulcated above; one-ribbed longitudinally, posteriorly; concave underneath.

Sepia Rupellaria *D'Orb. & Féruss. Céphal. Acét. Seiches*, t. 3. f. 10—13. 1839, shell; *D'Orb. Moll. Viv. et Fos.* i. 276.

Hab. Neighbourhood of Rochelle, &c. Ireland? *Ball*, 1839.

17. Sepia elongata.

Animal ———— ? Shell very elongated, narrow, pointed in front, enlarged behind, and provided with a wing-like expansion and a long acute beak, rugose above, with a medial longitudinal rib; swollen beneath, gibbous in the centre.

Sepia elongata *D'Orb. & Féruss. Céphal. Acét. Seiches*, t. 24. f. 7—10. 1339, shell; *D'Orb. Paléont. univ.* t. 4. f. 7—10. shell, *Paléont. étrang.* t. 4. f. 7—10. shell, *Moll. Viv. et Fos.* i. 289. t. 13. f. 7—10. shell.

Hab. Red Sea.

18. Sepia Sinope.

Animal ——— ? Bone elongate, sublanceolate; back smooth, slightly concentrically wrinkled, with two deep grooves in the side of the centre of the back; rather tapering at the upper part; apex imperfect.

Sepia australis *Quoy & Gaim.* ? *Féruss. Céphal. Acét. Sepia*, t. 12. f. 9. shell (not D'Orb.).

a. China. Bone. Dry. Imperfect.

†† *Shell oblong, posterior end expanded, produced, cartilaginous, not beaked, convex beneath.*—Sepiella.

19. Sepia ornata.

Body ovate, elongated, very smooth, brown, spotted with white. Fins very broad, broader behind. Ears with broad thick edges. Sessile arms thick, short, unequal; length, 4, 3, 1, 2; cups in four rows; rings oblique, smooth on the narrow, and with short unequal teeth on the broad edge. Tentacular arms lanceolate, with very small close cups of equal size in eight or ten lines, with toothed rings. Shell oblong, elongate, straight, compressed, wrinkled above, obtuse anteriorly, winged posteriorly.

Sepia ornata *Rang, Magas. de Zool.* 1837, 76. t. 101.; *D'Orb. et Féruss. Céphal. Acét.* t. 22.; *D'Orb. Paléont. univ.* t. 3. f. 12. t. 4. f. 1, 2., *Paléont. étrang.* t. 3. f. 12. t. 4. f. 1, 2., *Moll. Viv. et Fos.* i. 280. t. 12. f. 12. club of tentacle, t. 13. f. 1, 2. shell.

Hab. Coasts of Africa, at Goree, Senegal, &c.

20. Sepia sinensis.

Body oblong, elongate, smooth, narrow, blunt behind. Fins narrow, rather wider behind, beginning behind the front edge. Sessile arms with four series of small cups. Tentacular arms rather short, slender, without any distinct club; slightly impressed at the top externally; cups very minute or entirely wanting. Shell oblong, elongate, straight, rounded in front, hinder ends not beaked above, expanded and produced into a cartilage behind; convex beneath.

Sepia inermis *Hassell, MS.; Férussac, Céph. Acét.* t. 6*. not t. 20. part; *D'Orb. Moll. Viv. et Fos.* i. 295.
Sepia sinensis *D'Orb. Céph. Acét. Seiches*, t. 9. f. 1, 2. 1839, from Chinese drawing, *Moll. Viv. et Fos.* i. 299.
Niao-tse-in, *Encyclopédie Japonaise.*
a. China. In spirits. Presented by R. Card, Esq.
b. The shell of *a.*
c, d. Animals. Salted specimens, as sold in Canton market. Presented by Tradescant Lay, Esq.
e, f. The shell of *c.* and *d.*

21. SEPIA MICROCHEIRUS.

Body ovate, oblong, smooth, rounded behind, spotted with violet. Fins broad, thickened, wider behind. Ears with a raised edge behind. Sessile arms short, triangular, unequal; order of length, 4, 3, 1, 2; cups in four rows; rings entire on the narrow, and narrow teeth on the broad edge. Tentacular arms lanceolate; cups exceedingly small, equal-sized, in ten or twelve series. Shell ovate, oblong, wrinkled, acuminate in front, narrow and rounded behind; convex above, cartilaginous underneath, and expanded into two wings behind; beneath with a strong central groove in front.

Sepia microcheirus *Gray, Brit. Mus.* 1830.
Sepia inermis *Hasselt, MS.* fide *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 20. f. 1—9. 1839, not t. 6.; *D'Orb. Paléont. univ.* t. 3. f. 9, 10., *Paléont. étrang.* t. 3. f. 9, 10., *Moll. Viv. et Fos.* i. 295. t. 12. f. 9, 10. ring of cup.

Hab. India.
a. India. Young. In spirits. Presented by General Hardwicke.
b. The shell of *a.* dry.
c. India. Young. In spirits.
d. The shell of *c.* dry.
e. India. Young.
f. The shell of *e.* dry.
g. India.? In spirits. Presented by Mr. John Leadbeater, senior.
h. The shell of *g.* in a bad condition. In spirits.
i. India. Very young. In spirits. Presented by General Hardwicke.

††† *Shell oblong, rounded behind, beaked*

22. SEPIA ROSTRATA.

Body thick, rounded, narrow before, obtuse behind. Fins thick, narrow in front, dilated behind. Sessile arms elongate, slender,

unequal; order of length, 4, 3, 2, 1; cups spherical, with very small smooth-edged rings. Tentacular arms lanceolate, with very small numerous equal-sized cups in many lines, and with toothless rings. Shell ovate, oblong, tubercularly wrinkled, depressed, broader in the middle, narrow behind, and furnished with an elongated compressed beak beneath; convex in front, concave and with a diaphragm behind.

Sepia rostrata *D'Orbigny, Céphal. Acét. Seiches*, t. 8. f. 6. 1826, t. 29. 1839, *Paléont. univ. & Paléont. étrang.* t. 4. f. 11, 12., *Moll. Viv. et Fos.* i. 293. t. 13. f. 11, 12. shell.

Hab. Indian Ocean, Bombay, Ceylon, and New Holland.

In this and in several of M. D'Orbigny's descriptions, the French and Latin versions differ. I have taken the French as being most probably the correct one.

23. Sepia indica.

Body short, round, smooth. Fins thick, narrow, broader behind. Sessile arms short, unequal; order of length, 4, 3, 1, 2; cups hemispherical. Tentacular arms very long, slender; cups very small, equal-sized, in ten or twelve series. Shell ovate oblong, wrinkled, acuminate at each end, shortly beaked behind, with a thick convex diaphragm behind beneath.

Sepia Blainvillei *D'Orb. & Féruss. Céph. Acét.* t. 21. 1839, not Desh. 1837; *D'Orb. Moll. Viv. et Fos.* i. 295.

Sepia indica *D'Orb. Moll. Viv. et Fos.* i. 298. 1845.

? S. australis *D'Orb. Céphal. Acét. Sepia*, t. 7. f. 4. bone of young, *Moll. Viv. et Fos.* i. 294. not Quoy.

Hab. Bombay, New Holland.

a. Cape Upstart, Australia. In spirits. Presented by J. B. Jukes, Esq.

24. Sepia myrsus.

Animal ——— ? Bone oblong, the hinder extremity rounded, rather produced, shelly, with a slight thickening within; apex blunt, rather produced, inner surface suddenly thickened, the upper half convex, with a slight central depression.

Hab. China.

a. China. Shell. Dry.

25. Sepia Mestus.

Animal ——— ? Bone oblong, rounded behind; cavity narrow behind, rapidly widening (surface destroyed); apex elongated, acute, recurved, shelly.

Hab. Australia.

a, *b*. Australia. Shell. Dry. Presented by Andrew Sinclair, M.D. R.N.

§§ *Sessile Arms with equal, small Cups. The upper Pair with two Rows of Cups.*

26. Sepia elegans.

Body ovate, oblong, elongate, smooth, acuminated anteriorly. Fins very narrow. Head smooth. Sessile arms short, unequal; length, 4, 3, 1, 2; cups spherical, oblique, in two rows on the dorsal pair and the base of the other, and in four rows on their ends, the second and middle rows of the latter larger. Tentacular arms long, with five series of small cups and three much larger ones; with the rings rather oblique and toothed. Shell elongated, arched behind, very narrow, winged and pointed in front, very narrow and winged behind, with a medial crest externally.

Sepia elegans *D'Orb. Tab. Méth. Seiches*, t. 8. f. 1—5. 1826; *Blainv. Dict. Sc. Nat.* xlviii. 284., *Faune Franç.* 19.; *Rang*, *Mag. de Zool.* 1837, 74. t. 99.; *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 8. f. 1—5. t. 27. f. 3—6.; *D'Orb. Paléont. univ.* t. 3. f. 6—8., *Paléont. étrang.* t. 3., *Moll. Viv. et Fos.* i. 285. t. 12. f. 6—8.

Hab. Mediterranean, Messina, Adriatic, Malaga, and Coast of Algiers.

27. Sepia Orbignyana.

Body oblong, elongated, smooth. Fins narrow, thin. Head very large. Sessile arms short, triangular, unequal; order of length, 1, 4, 3, 2; cups subspherical, in two rows on the base of the three upper pairs, and four on the ventral pair; horny rings entire. Tentacular arms slender; club lanceolate; cups in five lines, with five or six very large ones in the middle line. Shell elongated, grooved above, granular; narrow and acuminated in front; narrowed, thin, rounded, and with an elongated recurved beak behind.—Head and back violet, beneath white.

Sepia Orbignyana *Féruss. D'Orb. Tab. Méth. des Céph.* 66. 1826, *Ann. Sc. Nat.* 1826; *Blainv. Faune Franç.* 19.; *D'Orb. et Féruss. Céphal. Acét. Seiches*, t. 5. t. 27. f. 1, 2.; *D'Orb. Paléont. univ.* t. 4. f. 3, 4., *Paléont. étrang.* t. 4. f. 3, 4., *Moll. Viv. et Fos.* i. 274. t. 13. f. 3, 4.

Hab. Atlantic Ocean and Mediterranean, Naples.

§§§ *Sessile Arms provided with very unequal-sized Cups, the middle one largest. Shell narrowed behind.*

28. Sepia capensis.

Body ovate, oblong, smooth. Fins dilated behind. Sessile arms short, strong; cups spherical, pedunculed, very unequal in size, the middle one largest. Tentacular arms scarcely clubbed; cups slightly oblique, in three series, the middle series with three much largest, and with the rings toothed on the inner edge. Shell much depressed, oblong, elongate, enlarged, and pointed in front, tapering, thin, very obtuse, and with an acute projecting beak behind.

Sepia capensis *D'Orb. Tab. Méth. Céph. Seiches*, t. 7. f. 1—3. 1826, *Moll. Viv. et Fos.* i. 283.; *D'Orb. et Féruss. Céph. Acét.* t. 7. f. 1—3. t. 12. f. 7—11. t. 17. f. 18, 19.

Sepia australis *Quoy & Gaim. Voy. Ast. Zool.* 70. t. 5. f. 3—7. 1832, not D'Orb. 1826.

Hab. Cape of Good Hope.

Var. Shell larger, scarcely so arched and with much longer spine than in M. D'Orbigny's figure. Perhaps a distinct species.

a. Sydney. Shell. Dry. Presented by J. Edwards, Esq. R. N.

b. Australia. Shell. Dry. Presented by A. Sinclair, M. D. R. N.

4 § *Doubtful Recent Species.*

29. Sepia mucronata.

Sepia mucronata *Rafin. Précis des Découv. Somiol.* 29. 1814; *D'Orb. Moll. Viv. et Fos.* i. 299.

Hab. Sicily. Perhaps this is the *S. elegans.*

30. Sepia Antillarum.

Sepia Antillarum *D'Orb. Moll. des Antilles*, i. 33. n. 8. 1838, *Moll. Viv. et Fos.* i. 300.

Sepia *Brown, Nat. Hist. of Jamaica*, 386.

Hab. Jamaica.

5 § *Fossil Species.*

* *Tertiary, Paris Basin.*

31. Sepia sepioidea.

Shell thick, narrow behind; beak thick, elongate, acute; lower lamina thick, reflexed, deeply radiated, edge toothed; upper callosity deeply rugose.

Guetard, Mém. t. 2. f. 30.
Os de Seiche *Cuvier, Ann. Sci. Nat.* ii. 482. t. 22. f. 1, 2. 1824.
Beloptera Sepioidea *Blainv. Malac.* add. 621. t. 7. 1825., *Mém. Belemn.* 110. t. 1. f. 2.
Sepia Cuvieri *D'Orb. Tab. Céphal.* 67. 1825; *Galeotti, Mem. del Brab.* 140. 1837; *Desh. Fos. Paris*, 758. t. 101. f. 7, 8, 9.
Belosepia Cuvieri *Voltz, Jahrb.* 410. 1830; *D'Orb. Ann. Sci. Nat.* xvii. t. 11. f. 11. 13. 1842.
Sepia longispina *Desh. Fos. Paris*, 757. t. 101. f. 4, 5, 6. 1837.
S. longirostris *Desh. F. P.* 757. t. 101. f. 10, 11, 12. 1837.
S. Blainvillii *Desh. F. P.* 757. t. 101. f. 13, 14, 15, 1837.
S. Sepioidea *D'Orb. & Féruss. Céph. Acét. Sepia*, t. 3. f. 5. t. 14. f. 4—12. t. 16. f. 7. 9.; *D'Orb. Paléont. univ.* t. 7. f. 4. 8., *Moll. Viv. et Fos.* i. 269.

Fos. Paris Basin.

a. End of shell and beak. Paris. Presented by J. E. Gray, Esq.

32. Sepia compressa.

Shell, hinder extremity very much compressed laterally; beak thick, acute, recurved, lower plate short; lower callosity narrow, prominent; cavity slender, deep, marked with arched striæ.

Beloptera compressa *Blainv. Belemn.* 110. t. 4. f. 10. 1837.
Sepia Defrancii *Desh. Fos. Paris*, 759. t. 101. f. 1. 3. 1837.
Sepia compressa *D'Orb. & Féruss. Céph. Acét. Sepia*, t. 16. f. 4. 6. 1839; *D'Orb. Paléont. univ.* t. 7. f. 1. 3., *Moll. Viv. et Fos.* i. 271.

Fos. Paris Basin.

** *Upper Oxford Clay.*

33. Sepia hastiformis.

Shell elongate, depressed, hastate, ornamented with longitudinal lines of large tubercles, attenuated in front, dilated behind, sides winged and blunt.

S. *Knorr, Samml.* i. t. 22. f. 2.?
Sepia hastiformis *Rüppell, Abbild. Besch.* 9. t. 3. f. 2. 1829; *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 16. f. 1, 2.; *D'Orb. Paléont. univ.* t. 5. f. 4. 6., *Moll. Viv. et Fos.* 265.

Fos. Lithographic Stone, Solenhofen.

34. Sepia caudata.

Shell elongate, with transverse lines of large tubercles, attenuated and produced in front, dilated and winged behind.

Sepia caudata *Munster*, *Taschenb.* 252. 1837 ; *Féruss. et D'Orb. Céphal. Acét. Sepia*, t. 15. f. 1, 2. ; *D'Orb. Paléont. univ.* t. 5. f. 1. 3., *Moll. Viv. et Fos.* i. 267.
S. hastiformis (adult) *D'Orb.* l. c. 267. ?

Fos. Oxford Clay.

35. Sepia antiqua.

Shell depressed, with concentric lines of very small tubercles ; attenuated in front ; dilated, winged, and pointed behind.

Sepia antiqua *Munster*, *Taschenb.* 252. 1837 ; *D'Orb. et Féruss. Céph. Acét. Sepia*, t. 14. f. 1, 2. ; *D'Orb. Paléont. univ.* t. 6. f. 1. 3., *Moll. Viv. et Fos.* i. 266.

Fos. Lithographic Stone, Solenhofen.

36. Sepia lingulata.

Shell ovate, oblong, with concentric lines of tubercles ; acuminated before and behind.

Sepia lingulata *Munster*, *Taschenb.* 252. 1827 ; *D'Orb. Céph. Acét.* t. 14. f. 3. t. 15. f. 4, 5. t. 16. f. 2. 1839, *Paléont. univ.* t. 6. f. 4. 6., *Moll. Viv. et Fos.* i. 268.
Sepia obscura *Munster*, l. c. 252.
S. regularis *Munster*, l. c. 252.
S. gracilis *Munster*, l. c. 252.

Fos. Solenhofen.

37. Sepia venusta.

Shell ovate, compressed, transversely striated ; subangular in front, three-lobed and slightly winged behind.

Sepiolithes venustus *Munster*, *MS.*
Sepia venusta *Munster*, *Taschenb.* 252. 1837 ; *D'Orb. et Féruss. Céph. Acét.* t. 15. f. 6. 1837 ; *D'Orb. Paléont. univ.* t. 5. f. 7., *Moll. Viv. et Fos.* i. 268.

Fos. Solenhofen.

Suborder III. *Belemnophora.*

Shell calcareous, internal, chambered; chamber traversed by a siphon.

Cephal. Polarnaxia Spirularia *Rafin. Anal. Nat.* 141. 1815.
Cephal. Spiriformia and Belemnomorpha *Bronn, Gesch. der Nat.* iii. 536.

Fam. VII. LITUIDÆ.

Body subcylindrical, oblong, end rounded; sometimes furnished with a thickened belt, and with a small semilunate fleshy fin on each side. Mantle free all round, cartilage on the inner side of the ventral surface linear.
Eyes covered with the skin, with a lower eyelid. Buccal membrane without cups.
Arms. Sessile arms triangular, tapering; cups numerous, equidistant, very small, slightly pediceled in six longitudinal series. Tentacular arms elongate, peduncled, cylindrical; club ——— ?
Siphuncle conical, with an apical valve.
Shell internal, shelly, spiral, placed symmetrically at the hinder part of the body, the last chamber being in the central line of the back; chambered, the chambers furnished with a siphon, the last chamber only large enough to contain a very small part of the animal.

Spirulidæ *Owen, Trans. Zool. Soc.* ii. 1836; *D'Orb. Moll. Viv. et Fos.* i. 160. 306. 1845.
Lituidæ *Gray, Proc. Zool. Soc.* 1847, 206.
Spirularia (pars) *Rafin. Anal. Nat.* 141. 1815.
Sepiacea (pars) *Desh. Ency. Méth.* iii.
Sepiadæ (pars) *Geinitz, Grund der Verst.* 261. 1845.
Spiriformia *Bronn, Gesch. de Nat.* iii. 535.

Synopsis of Genera.

A. *Shell thin, apex not coated.*

1. Lituus.

B. *Shell apex enveloped in a thickened laminar Coat, more or less produced behind.*

2. Spirulirostra. Apex of shell spinal.

3. Beloptera. Apex of shell nearly straight.

Munster has given a genus under the name of *Corniculina*, type *C. Ehrenbergi* but it wants further examination; see *Bronn, Gesch. der Nat.* iii. 535. 339.

A. *Shell thin; apex hooked, not enveloped in a thickened laminar Coat.* — Recent.

1. LITUUS.

Body oblong, rather compressed. Mantle free, upper end truncated, with a projection of the margin on the middle of the back, and one on each side of the siphuncle on the ventral side. Fins two, small, caudal on the side of the extremity of the back. End of the body sometimes furnished with a central, rounded, thickened belt, with a central rounded cavity. — *Head* rather compressed; eyes large, covered with the skin. — Sessile *arms* triangular, tapering, rounded externally; cups numerous, equidistant, very small, slightly pedicelled, in six longitudinal series; rings entire, or very minute, denticulated; third and fourth shortly webbed, the rest free. Tentacular arms elongated, cylindrical; club ———————— ?. — *Siphuncle* with an apical valve. — *Shell* calcareous, cylindrical, conical, tapering, involute on the same plane, the whorls separate from each other, chambered. Septa concave outwards, with a shelly funnel-shaped siphon on the inner or most curved side, traversing each cell without communicating with each other. Last chamber rather the largest; the nucleus, or first-formed chamber, roundish, swollen, embedded, placed symmetrically, the larger portion being on the hinder part of the centre of the back, and the smaller whorls below on the hinder part of the ventral surface, covered on the sides by the flesh of the body, and above and below by a thin skin.

Péron and Lamarck represent the shell as partly exposed at the end of the body, and this agrees with the imperfect specimen brought home by Captain Belcher, and described by Mr. Owen. Mr. Cranch's fragment, that described by M. De Blainville, and the nearly perfect specimens brought home by Mr. Earl, first figured by Mrs. Gray in the *Annals*, have the shell entirely enclosed, and the hinder part of the body furnished with a thick ring-like fleshy substance, pierced in the centre, and having a slight semicir-

cular kind of fin on each side. It has been suggested that this may depend on the sex of the specimens. De Blainville's specimen was a female, but the sex of the others is unknown.

Lituus *Brown, Jam.* 1756; *Humph. MS.* 1797.
Ammonia *Gualtieri*, 1742; *Breyn, Polyth.* 17 .
Pedum *Humph. Mus. Calon.* 1797, not Lam.
Spirula *Lamck. Syst.* 1801, *Hist.* ed. 2. xi. 280.; *Blainv. Anal. Franç. et étrang. Anal. et Phys.* i. 369. t. 1837; *Gray, Ann. and Mag. N. Hist.* xv. 257. 234. 445. t.; *D'Orb. Moll. Viv. et Fos.* i. 314.; *Owen, Zool. H. M. S. Samarang*, 1848.
Spirula *a. Blainv. Malac.* 1825; not *b* and *c*.
Spirulæa *Péron & LeSueur.*
Cornu Ammonis *Rumph.*
Nautilus sp. *Lister*, 1685.

The following names have been applied to the *Shells* of this genus, but it is impossible to determine to which of the species (if they are distinct) the names belong: —

Nautilus exiguus *Lister, Hist. sive Syn.* lib. iv. t. 550. f. 2.
Cornu Ammonis *Rumph. Thesaur.* t. 20. n. 1.
Cornu Hammonis legitimus *Klein, Ostrac.* 5. sp. 1. t. 1. n. 6.
Cornu Hammonis *Gève, Monat. Belust. ou Essais Verest.* t. 3. f. 8.; *Martini, Conch. Cab.* i. 274. t. 18. f. 1.
Lituus minor *Brown, Nat. Hist. Jamaica*, 398.
Nautilus spirula *Linné, Syst. Nat.* 1767; *Schrœter, Einleitung*, i. 13.; *Gmel. Syst. Nat.* 3371. n. 9.; *Schreber, Versuch.* i. 1.; *Burrow, Elements of Conchol.* t. 12. f. 3.
Spirula fragilis *Lamck. Syst. des An. s. Vert.* 102.; *Bosc, Hist. Nat. des Coq.* v. t. 52. f. 2, 3.; *Roissy, Buff. de Somin.* v. 15.; *Montfort, Conch. Syst.* 99.; *Schumach. Vers. test.* 256.; *D'Orb. Moll. des Antilles*, i. 64. n. 16., *Moll. Viv. et Fos.* i. 315. t. 16.
Spirula australis *Johnst. Edin. Journ.* April, 1828, p. 74.
Spirula Peronii *Lamarck. Hist. An. s. Vert.* vii. 601. n. 1.; *D'Orb. Tab. des Céph.* 68., *Moll. des Canaries*, 24. n. 8.; *Blainville, Faune Franç.* 22. t. 3. B. f. 1.; *Sowerby, Genera of Shells; Blainv. Nouv. An. du Mus.* iii. 18. t. 1.; *Cuvier, Règne Anim.* t. 8. f. 1.; *Potiez et Mich. Gall. des Moll.* i. 9. n. 1.; *Reeve, Conch. Syst.* ii. 296. t. 298.

* *The posterior Part of the Body without any ring, and the last Whorls of the Shell exposed.— Males?* — Spirula.

1. Lituus prototypus.

Spirula prototypus *Péron, Voy. Terres Austral.* t. 30. f. 4. 1840, cop. *Gray, Ann. N. H.* xv. t. 15. f. 7.; *D'Orb. Moll. Viv. et Fos.* t. 16. 2.; *Blainville, Man.* t. . f. .; cop. *Gray*, l. c. t. 15. f. 6.

Spirula australis *Lamck. Ency. Méth.* t. 465. f. 5. 18— ?, cop. *Gray*, l. c. xv. t. 15. f. 5.; *D'Orb. Moll. Viv. et Fos.* t. 16. f. 1.
Spirula Peronii *Lamck. Hist. Anim. s. V.* vii. 601. ?; *Owen*, in *Adams, Zool. Voy. Samarang, Moll.* 13. 15. t. 4. f. 1. 4, 5, 6, 7. 11, 12, 13, 14, 15.

Hab. Australia?

** *The posterior Part of the Body furnished with a circular Disk, covering and concealing the Shell, and with semicircular Fin-like appendages on each Side.* — Lituus.

2. Lituus lævis.

Mantle smooth.

Spirula ———— ? *Gray, Ann. Nat. Hist.* xv. 257. f. 5. f. 1. 234. 445.
Spirula Peronii? *Reeve, Elem. Conch.* 16. t. A. f. a. d. not good (not *Lamck.*).
Spirula australis *Owen*, in *Adams, Zool. Voy. Samarang, Mollusca*, 13. t. 4. f. 2. 8. 1848, not Lamck.

Hab. New Zealand. Mus. Mr. Cuming.

3. Lituus vulgaris.

Mantle pitted with close-set angular depressions, giving it a well-marked, reticulated character; disk and appendages smooth.

Spirula vulgaris *Leach, MS.* 1817; *Leach, Tuckey, Voy. Zaire*, append.
Spirula ———— ? *Blainville, Ann. Franç. et étrang. Anal. Phys.* i. 369. t. ? 1837, cop. *Zool. Voy. Samarang, Moll.* t. 4. f. 15*? cop. *D'Orb. Moll. Viv. et Fos.* t. 16. f. 3. 12.
Spirula reticulata *Owen*, in *Adams, Zool. Voy. Samarang, Moll.* 13. t. 4. f. 3. 9, 10.

Hab. Timor.

a. Africa. Skin of the body and shell. In spirits. Presented by J. Cranch, Esq., Congo Expedition.

B. *Shell apex enveloped in a thickened laminal Coat, produced behind.*—Fossil.

2. SPIRULIROSTRA.

Animal ———— ? only known fossil. — *Shell* calcareous, involute on the same plane, the whole separate from each other, chambered. Septa transverse, concave, with a siphon on the inner or arched side. Shelly case covering the whole of the

shell, rather produced on each side in front, and produced behind into an acute conical tail, leaving a small concavity over the tip in front of the arch of the whorls.

Spirulirostra *D'Orb. Ann. Sci. Nat.* xvii. 362. t. 11. f. 16. 1842, *Moll. Viv. et Fos.* i. 312.; *Desh.* in *Lamck. Hist.* xi. 248.

1. SPIRULIROSTRA BELLARDII.

Spirulirostra Bellardii *D'Orb. Ann. Sci. Nat.* xvii. 302. t. 11. f. 16., *Moll. Viv. et Fos.* i. 312. t. 15.

Fos. Middle Tertiary, Turin.

3. BELOPTERA.

Animal ——————? only known fossil. — *Shell* calcareous, conical, straight, or slightly curved, chambered; chambers pierced, with a siphon on the ——? edge. Enveloping case elongate, subcylindrical in front, and sometimes winged on the sides, ending in a blunt beak at the hinder end.

Fos. Lower Tertiary formations.

Beloptera *Deshayes, MS, Ency. Méth.* ii. 135. 1830, in *Lamck. Hist.* xi. 243.; *Desh. MS.* in *Blainv. Malac. Supp.* 621. t. 11. f. 8. 1825, *Mém. Belemn.* 3. f. 3. 1827; *Sow. Min. Fos.* t. 591.; *D'Orb. et Féruss. Céphal. Acét.* t. 3. f. 7. 9. t. 21. f. 11, 12. 1839, *Moll. Viv. et Fos.* i. 308.

Sepia species *D'Orb. & Féruss. Tab. Méth. Céph.* 67. 1825.

Sepia (subgenus) *Gray, Proc. Zool. Soc.* 1847, 205.

* *Lateral Expansions distinct.*

1. BELOPTERA BELEMNITOÏDEA.

Shell oval, oblong, curved, expanded on the sides; above convex, beneath concave; beak blunt, straight.

Beloptera belemnitoïdea *Blainv. Malac. Supp.* 621. t. 11. f. 8. 1825; *Dal. Sci. Nat.* xl. viii. 290. t. 20. f. 8.; *Desh. E. M.* ii. 135., *Fos. Paris*, 762. t. c. f. 4, 5, 6.; *D'Orb. Moll. Viv. et Fos.* i. 308. t. 14. f. 1. 4.

Beloptere Deshayes *Blainv. Belemn.* t. 1. f. 3.

Sepia Parisiensis *D'Orb. & Féruss. Tab. Céph.* 67. 1825, *Ann. Sci. Nat.* ii. 482. vii. 57.

Beloptera Parisiensis *D'Orb. Gray, P. Z. Soc.* 1847, 205.

Dent de Poisson *Guet. Mém.* v. t. 2. f. 11, 12.

Beloptera Belemnoidea *Blainv.*

Fos. Paris Basin.

a. Adult, with large wing-like expansion and deep cavity. Paris. Presented by J. E. Gray, Esq.

b. Broken, or young? Wings very slightly expanded, very thin, and cavity very small, shallow. Paris. Presented by J. E. Gray, Esq.

** *Lateral Expansion none.*

2. Belopteba Levesquei.

Shell oblong, elongate, arched, narrow, cylindrical; three-keeled in front; beaked, blunt, and striated behind.

Belopteba Levesquei *D'Orb. et Féruss. Céph. Acét.* t. 20. f. 10. 12.; *D'Orb. Moll. Viv. et Fos.* i. 307. t. 11. f. 5. 7.

Fos. Paris Basin.

3. Belopteba anomala.

Shell oblong, elongate, depressed, arched, concave, with two diverged ridges above, behind blunt.

Belopteba anomala *Sow. Min. Conch.* vi. 184. t. 591. f. 2. 1828; *D'Orb. Moll. Viv. et Fos.* i. 309. t. 14. f. 8. 10.

Fos. London Clay.

Fam. VIII. BELEMNITIDÆ.

Animal elongated ——— ? only known fossil.

Shell internal, (horny or) calcareous; the apex conical, chambered. Chambers concave, simple, pierced with a marginal siphon on the ventral side; sometimes covered externally with concentric layers, forming a more or less elongate, subcylindrical, conical *style*.

Belemnitidæ *Owen, Trans. Zool. Soc.* ii. 1836; *D'Orb. Moll. Viv. et Fos.* i. 443. 1845.

Onychoteuthidæ (pars) *Gray, P. Z. Soc.* 1847, 206.

Cephalopodes polythalmes (pars) *Lamck. Hist.* ed. 2. xi. 268.

Belemnomorpha *Bronn, Gesch. der Nat.* iii. 536.

Synopsis of the Genera.

A. *Shell conical, naked, not covered with any externally deposited Coat.*

1. Conoteuthis. Shell with strong longitudinal keel on the middle of the back.

B. *Shell conical, covered with an externally deposited Coat, forming a more or less elongated cylindrical Style.*

a. *External Coat thin.*

2. Belemnoteuthis.

b. *External Coat forming an elongate Style.*

3. Actinocamax. The conical cavity in the style with an elongated longitudinal fissure on the lower side.

4. Belemnites. The conical cavity in the style with an entire edge and no longitudinal figure.

A. *Shell conical, thin, naked, not covered with any externally deposited Coat; probably produced behind into a long, slender, dorsal plate.*

1. CONOTEUTHIS.

Animal ———— ? — *Shell.* Cone broad, rapidly enlarging, thin, horny, smooth, marked with very slight rather oblique concentric lines of growth, not covered with any externally deposited calcareous coat, with a well marked strong longitudinal keel on the middle of the back (probably produced into a slender elongated dorsal style). Septa transverse smooth.

Conoteuthis *D'Orb. An. Sci. Nat.* xvii. t. 12. f. 1. 5. 1842, *Paléont. univ.* t. 30., *Paléont. Franç.* t. 1. supp., *Moll. Viv. et Fos.* i. 444. t. 32.; *Desh.* in *Lamck. Hist.* 240.

1. Conoteuthis Dupinianus.

Conoteuthis Dupinianus *D'Orb. An. Sci. Nat.* xvii. t. 12. f. 1. 5., *Paléont. univ.* t. 30., *Moll. Viv. et Fos.* i. 444. t. 32.

Fos. Paris Basin.

B. *Shell conical, thin, covered with a more or less thick externally deposited Coat.*

a. *Outer Coat thin, merely covering the Shell.*

2. BELEMNOTEUTHIS.

Animal elongate, subcylindrical. Fins lateral, rounded. Arms, sessile and peduncled, armed with two series of hooks (and round cups?). — *Shell* internal, conical, thin, elongate, subcylindrical; apex conical, chambered; septa concave, even edged. Siphon near the edge of the septa, the conical upper part covered ex-

ternally with a thin externally deposited coat, which becomes thinner above the apex; apex with two ridges on each side, those of one surface ("the dorsal," *Mantell*) parallel, and the other (ventral ?) rather diverging above.

Belemnoteuthis *Pearce*, *Proc. Geol. Soc.* 1842, ii. 593., *Annal. Nat. Hist.* 1842, ix. 578.

Belemniteuthis *Gray*, *Proc. Zool. Soc.* 1847, 206.; *Cunnington*, *London Geol. Jour.* i. 1847, 98, 99. t. 15. 16.; *Mantell*, *Phil. Trans.* 1848, 173.

Belemnite (animal and phragmocone) *Owen*, *Phil. Trans.* 1844, 65.; *D'Orbigny*, *Moll. Viv. et Fos.* i. t. 28. from Owen.

Dr. Mantell, in his restoration of this genus (*Phil. Trans.* 1848, t. 14. f. 3, 4.), seems to have overlooked the fact that the upper part of the shell appears, as figured by Messrs. Owen and Cunnington, to be subcylindrical, like the upper part of the cone of the Belemnites.

1. Belemnoteuthis antiquus.

Belemnoteuthis *Pearce*, *Proc. Geol. Soc.* 1842, ii. 593., *Ann. Nat. Hist.* 1842.

Belemnoteuthis antiquus *Cunnington*, *Lond. Geol. Jour.* 98, 99. t. 15, 16.; *Mantell*, *Phil. Trans.* 1848, 175. t. 13. f. 2, 3. 5. t. 14. f. 1. ? 3, 4. t. 15. f. 5.

Belemnites Owenii (pars) *Pratt*, *MS.*; *Owen*, *Trans. Roy. Soc.* 1844, 83. t. 2, f. 6, 7, 8. (not t. 5.) t. 3. t. 4. f. 1. t. 5. t. 6. t. 7. f. 4.

Belemnosepia de Chippenham *Chenu*, *Leçon Elém. H. N.* 238. f. 760. 1847, from Owen.

Belemnites Puzozianus (pars) *D'Orb. Moll. Viv. et Fos.* i. 519. t. 28. from Owen (t. 29, 30. theoretical).

Fos. Oxford Clay, Wiltshire.

a. Fossil. The cone and the upper part of the shell with remains of animal. Wiltshire. From Mr. Rich's Collection.

b, *c*. The lower part of the shell only. Wiltshire.

b. *Outer Coat produced, forming a subcylindrical external style.*

3. ACTINOCAMAX.

Animal unknown.—*Cone* ———— ?; the externally deposited style with an elongated longitudinal fissure in the lower side of the conical cavity.

Actinocamax *Müller*, *Trans. Zool. Soc.* ii. 64. 1823; *Voltz*, *Belemn.* . 35. 1830; *Blainv. Belemn.* 34. 1827.
Belemnitella *D'Orb. Bull. Soc. Géol.* 1841, *Paléont. univ.* 1846, *Moll. Viv. et Fos.* i. 447.
Act. inocamax (pars) *Voltz*, *Ann. Sci. Nat.* xiii. 354. 1840.
Belemnites *Breyn. Polyth.* 41. 1732; *Lamck. Syst. An. s. V.* 104. 1801, (B. paxillosa); *Montf. C. Syst.* 383. 1808.
Belemnites (pars) *Lamck. Hist.* 16.
Echinus (spine) *Bendant*, *Ann. Mus.* xvi. 1810.

1. Actinocamax verus.

Style elongate, lanceolate, smooth; trigonal in front; dilated, depressed, and mucronately acuminated behind; sides with a deep impressed groove, evanescent behind. Shell truncated, radiately ribbed, slit below.

Actinocamax verus *Müller. Trans. Géol. Soc.* ii. 64. t. 9. f. 17. 1823; *Voltz*, *Lehrb.* 1839, 522.
Belemnites fusiformis *Young*, *Geol. York*, 14. t. 14. f. 2.? 1822.
B. plenus *Blainv. Belem.* 59. n. 1 1827, *Dict. Sci. Nat.* f. 3.; *Desh. Ency.* ii. 124.; *Bronn*, *Lethæa*, ii. t. 83. f. 14.; *Roemer*, *Kreid.* 34.
B. mucronatus (pars) *Sonn. Mem. Conch.* vi. 205. t. 600. f. 6, 7. 1829.
B. lanceolatus *Son. Mem. Conch.* v. 208. t. 600. f. 8, 9. 1829, not Schloth; *Fusch*, *Pol. Paléon.* 162.; *Morris*, *Cat.* 177.
Belemnitella vera *D'Orb. Bull. Géolog.* 1842, 359., *Paléont. univ.* t 32. f. 1—6. 1846, *Moll. Viv. et Fos.* 447.
Actinocamax Blainvillei *Voltz*, *Belem.* 35. 1830.
Belemnitella Gulliemei *D'Orb. Bull. Soc. Géol. F.* 1842; *Brey. Polyth.* 411. t. 7. f. 15. 1732.
Echinus spine *Bendant*, *Ann. Mus.* xvi. t. 3. f. 8, 9, 1810; *Park. Org. Rem*, iii. t. 4. f. 19. 1811.

Fos. Greensand.

a, *b*, *c*, *d*. Style only. Folkstone. Presented by J. E. Gray, Esq.

2. Actinocamax paxillosa.

Style elongate, subconical, rugose, cylindrical, and slit in front, with ramulose flattened grooves on the sides, many-branched behind; mucronately acuminated behind. Shell raised; angle 19″ or 20″.

Belemnites *Breyn. Polyth.* 41. t. 7. f. 1—14.; *Klein*, *Tab. Mar.* 30. t. 7. f. 3, 4, 5.
Belemnites *Faujas St. Pierre*, 127. t. 32. f. 3.
Belemnites paxillosa *Lamck. Syst. A. s. V.* 104. 1801.

B. paxillosus *Montf. Conch. Syst.* i. 383. 1808; *Park. Org. Rem.* iii. 9. f. 1.; *Schloth. Tasch.* vii. 31. 70. 100, 101. (part).
B. mucronatus *Schloth. Tasch.* vii. 3. 1813, *Petref.* 47.; *Mantell, Fos. S. D.* t. 16. f. 1.; *Brong. et Cuv. Géol. Par.* t. 3. f. 1. a, b; *Nelson, Act. Holm.* 1825, 339., *Petref. Suec.* 9. t. 2. f. 1—4.; *Blainv. Belemn.* 7. t. 1. f. 12*.; *Sonn. Mem. Conch.* t. 600. f. 1, 2. 4.; *Desh. E. M.* ii. 125.; *Cuv. Règ. Ann. Ill.* t. 11. f. 3.
B. cylindrus *Wahlenb.* 1821.
? B. coniformis *Park. Org. Rem.* iii. 127. 132. t. 8. f. 10. 12. t. 9. f. 1. 1811.
B. subconicus *Lamck. Hist.* vii. 592. 1822 (part).
B. fusoïdes *Lamck. Hist.* vii. 1822.
B. electrinus *Miller, Belemn.* 61. t. 8. f. 2.
B. Osterfieldi *Blainv. Belemn.* 62. t. 1. f. 8.
B. Allani *Flem. B. A.* 240. 1828.
B. americanus *Morton, Amer. Jour.* xvii. 281. xviii. t. 1. f. 1. 3.; *Keferst.* 1834, 422.
Belemnitella mucronata *D'Orb. Paléont. Fran. Ter. Cret.* t. 7.; *Murchison, Russia*, 489. t. 43. f. 1—4., *Moll. Viv. et Fos.* i. 450. t. 33. f. 1—6.
? Belemnites ambiguus *Morton, Silliman, Jour.* xviii. t. 1. f. 4. cop.
? Belemnitella ambigua *D'Orb. Paléont. étrang.* t. 27. f. 13, 14., *Moll. Viv. et Fos.* i. 436. t. 33. f. 13, 14. from Morton.

Fos. Chalk.

a, *b*. Style from chalk. Norwich. Presented by Mr. E. Gerrard.
c, *d*. From chalk. Kent. Presented by J. E. Gray, Esq.

3. Actinocamax quadrata.

Shell subquadrate, short. Style elongate, subcylindrical, compressed and fissured in front, acuminated and mucronate behind; lateral groove broad, bifurcate, and branched behind.

Belemnitus quadratus *Defrance Cabinet; Blainv. Belem.* 62. t. 1. f. 9. 1827; *D'Orb. Ter. Cret.* 160. t. 6. f. 5. 10.
B. granulatus *Blainv. Belemn.* 63. t. 1. f. 10. (not Zieten) 1827; *Sow. M. C.* vi. 207. t. 600. f. 3. 5.; *Desh. E. M.* ii. 135.; *Potiez et Mich. Gal. Moll.* i. 22.; *Roemer, Kreid.* 84.; *Morris, Cat.* 177.
B. striatus *Blainv. Belemn.* 64. t. 1. f. 11. (not Hartm.) 1827; *Desh. E. M.* ii. 135.
Belemnitella quadrata *D'Orb. Paléont. univ.* t. 34. f. 510., *Moll. Viv. et Fos.* i. 451.

Fos. White Chalk. France, England.

4. Actinocamax subventricosa.

Shell conical, concentrically rugose. Style elongate, subcylindrical, smooth, rather trigonal, compressed in front, depressed and mucronate at the tip behind; lateral grooves flattened, simple, evanescent behind.

Belemnites subventricosus *Wahlenb. Act. Upsal.* viii. 80. 1821; *Voltz, Belem.* 64. t. 8. f. 1.
B. mamillatus *Nelson, Act. Holm.* 1825, 340., *Petref. Suec.* 10. t. 2. f. 2.; *Hissing, Lethæa Suec.* 31. t. 10. f. 7.; *Roemer, Kreid.* 84.
B. Scaniæ *Blainv. Belemn.* 61. 1827, *Dict. Sci. Nat.* f. 6.; *Desh. E. M.* ii. 124.
Belemnitella subventricosa *D'Orb. Paléont. univ.* t. 31. f. 7. 12., *Moll. Viv. et Fos.* i. 454. t. 33. f. 7. 12.

Fos. Chalk. Sweden.

4. BELEMNITES.

Shell conical? ————. The externally deposited *style* with an entire margin to the edge of the conical cavity (which covered the shelly cone).

Belemnites *Lister*, 1678; *D'Orb. An. Sci. Nat.* xvii. 1842, *Paléont. Ter. Jur.* 1842, *Moll. Viv. et Fos.* i. 459.
Belemnita *Fleming, Brit. Anim.* 1828.
Belemnites (pars) *Ehrhart, Bel. Suec.* 1727; *Lamck. Hist.* (not Syst. 1801).
Nautilus Belemnita *Gmelin.*
Histolithis *Montf. Conch. Syst.* i. 387. t. 97.
Acamas *Montf. Conch. Syst.* i. 1808.
Acheloïs *Montf. Conch. Syst.* i. 1808.
Callirhoe *Montf. Conch. Syst.* i. 1808.
Celocis *Montf. Conch. Syst.* i. 1808.
Chrysaor *Montf. Conch. Syst.* i. 1808.
Hibolithes *Montf. Conch. Syst.* i. 1808.
Paclites *Montf. Conch. Syst.* i. 1808.
Poradragus *Montf. Conch. Syst.* i. 1808.
Thalamus *Montf. Conch. Syst.* i. 1808.
? Platinites *Rafin.*
Actinocamax (pars) *Voltz, Ann. Sci. Nat.* xiii. 354. 1840, not Müller; *Philips, Hartmann.*
? Pseudobelus *Blainv. Belemn.* 113.
Notosiphites and Gasterosiphites *Duval.*
Oœli, Notocœli, and Gastrocœli *D'Orb. Paléont. univ., Moll. Viv. et Fos.*
Teudopsis sp. *Deslongchamps, Mém. des Soc. Norm.* v. 72. 1838.

Belemnosepia (pars) *Buckland, Geol. et Min.* i. 371. ii. 68. t. 44. f. 1. 7, 12.

Dr. Buckland gives a theoretical figure of the animal of this genus, which appears most consistent with the specimens I have examined (see *Geol. and Mineralogy with Nat. Theology*, ii. 70. t. 44. f. 1. 1836); and figures a Belemnites, with the upper part of the shell preserved (l. c. ii. t. 4. f. 7, 8, 9, 10, 11, 12. 1836).

Dr. Mantell (*Phil. Trans.* 1848, t. 15. f. 2. 3.) has figured a specimen which appears to have an elongated process on each side, like the processes on the side of the mouth of certain *Ammonites;* but, on examining the specimen, I am very doubtful if this appearance does not arise from an accidental fracture of the upper part of the conical sheath.

M. D'Orbigny describes the shell of this genus as horny, enlarged in front into a spathuliform dorsal plate, contracted behind, with a conical cavity furnished with concave septa, having a siphon on the ventral edge traversing all the cells, and coated externally with a shelly beak. The theoretical form of the bone is represented by M. D'Orbigny in *Ann. Sci. Nat.* 1842, t. , *Paléont. Franç. Ter. Juras.* t. 2. f. 1, 2. t. 3. f. 1, 2, 3. t. 4. f. 1., *Moll. Viv. et Fos.* i. t. 35, 36. The authority for this dorsal expansion appears to rest on certain lines seen on the outside of the cone of *Belemnites giganteus* var. *aalensis*, which, he thinks, resemble the grooves found on the dorsal surface of the bone of the cuttle-fish, *Sepia* or *Loligo*, and hence he believes they have a similar enlarged dorsal plate. This may be the case with some species, though, I believe, no specimens have been found to establish this theory, and the external surface of the conical part of other Belemnites shows no indication of any such grooves; but this may arise from two or more distinct forms being confounded in the present genus Belemnites.

Synopsis of the Sections of the Genus.

* Without any dorsal or ventral Groove.—Acœli.

† Lateral Lines none.—Acuarii.

†† Lateral Lines two on each Side.—Clavati.

** Ventral Groove distinct.—Gastrocœli *D'Orb.*, Notosiphites *Duval.*

† Lateral Lines none.—Canaliculati.

†† Lateral Lines two on each Side.—Hastati.

3* Dorsal Groove distinct.—Notocœli *D'Orb.*, Gastrosiphites *Duval.*

† Lateral Lines two on each Side.—Dilatati.

Professor Bronn, in forming this table, has, by mistake, transposed the position of the grooves (see *Gesch. der Naturg.* iii. 150.).

* *Without any dorsal or ventral Groove.*—Acœli *Bronn, Gesch. Nat.* iii. 150.

† *Style more or less conical, sometimes grooved or ridged at the lower Extremity, but without any lateral Grooves in Front.*—Acuarii *D'Orb. Ter. Jur.* i. 73., *Moll. Viv. et Fos.* i. 480.; *Bronn*, l. c. 150.

1. Belemnites niger.

Shell elongate, subcylindrical, subquadrate, posteriorly acuminated, above bisulcate, anteriorly dilated; aperture somewhat square-shaped; alveolus 20°.

Belemnites niger *Lister*, *Conch. Angl.* t. 7. 31. 226.? 1678; *D'Orb. Paléont. univ.* t. 39. t. 40. f. 1—5., *Moll. Viv. et Fos.* i. 483., *Belemn.* n. 2.

Belemnites coniformis *Parkinson*, *Organ. Rem.* iii. 127. t. 8. f. 11. 12. 15.? 1811.

Belemnites paxillosus *Schlotheim*, *Taschenb.* vii. 51. 70. 1813 (not Montf. 1808); *Schloth. Petref.* 46. n. 3.; *Blainville*, *Belemnites*, 101. n. 43.; *Voltz*, *Belemn.* 50. t. 6. f. 2. t. 7. f. 2.; *Zieten*, *Wurt.* 29. t. 23. f. 1.; *Hartmann*, *Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 427. n. 68.; *Roemer*, *Ool.* 171. n. 17.; *Pusch*, *Polers. Paléont.* 162. n. 5.; *Morris*, *Brit. Fos.* 177.

Belemnites vulgaris *Young*, *Geol. Surv. of Yorksh.* 256. t. 14. f. 1, 2. 1822.

Belemnites apicicurvatus *Blainv. Belemn.* 76. n. 16. t. 2. f. 6. 1827; *Zieten*, *Wurt.* 30. t. 23. f. 4.; *Keferst. Dict. Nat.* 424. n. 14. (1834).

Belemnites apicicurvus *Hartmann*, *Wurt.* 15. n. 1. 1830.

Belemnites bisulcatus *Blainv. Belemn.* 79. n. 19. t. 2. f. 7. 1827, *Dict.* t. f. 6, 7.; *Hartmann*, *Zieten*, *Wurt.* 31. t. 24. f. 2. p. 16. n. 1.; *Desh. Encycl.* ii. 128. n. 12.; *Keferst. Dict. Nat.* 424. n. 19, 20.; *Roemer*, *Nord. Ool.* 171. n. 18.

Belemnites Crassus *Voltz*, *Belemn.* 53. n. 10. t. 7. f. 2. 1830; *Zieten*, *Wurt.* t. 22. f. 1.; *Keferst. Dict. Nat.* 425. n. 31.; *Roemer*, *Ool.* 174.; *Potiez et Mich. Gal.* i. 22. n. 4.

Belemnites subaduncatus *Zieten*, *Wurt.* 27. t. 21. f. 4. 1830 (not Voltz); *Voltz*, *Belemn.* 48. n. 8. t. 3. f. 2. 1830; *Keferst. Dict. Nat.* 428. n. 91.

Belemnites subaduncus *Roemer*, *Ool.* 170. n. 15. 1835.

Belemnites teres *Sthal. Zieten*, *Wurt.* 28. t. 21. f. 8. deformed, 1830; *Hehl. Zieten*, t. 21. f. 2.? deformed.

Belemnites carinatus *Hehl. Zieten*, *Wurt.* 27. t. 21. f. 6. 1830; *Keferst. Dict. Nat.* 425. n. 27.
Belemnites papillatus *Pheninger*, *Zieten*, 30. t. 23. f. 7. 1830; *Keferst.* 427. n. 69.; *Roemer*, *Ool.* 169.
Belemnites subpapillatus *Zieten*, *Wurt.* 30. t. 23. f. 8.? 1830; *Keferst.* 428. n. 95.; *Roemer*, *Ool.* 169.
Belemnites quadrisulcatus *Hartmann*, *Ziet.* 31. t. 24. f. 4.? 1830; *Keferst.* 427. n. 78.; *Roemer*, *Ool.* 175.
Belemnites affinis *Munster*, *zur Belemn.* 14. t. 2. f. 1. 3. 1830 (not Raspail, 1829); *Keferst.* 424. n. 9.
Belemnites lævigatus *Zieten*, *Wurt.* 282. t. 21. f. 12.? 1830; *Keferst.* 426. n. 53.; *Roemer*, *Ool.* 169.
Belemnites turgidus *Schub. Zieten*, *Wurt.* 28. t. 22. f. 1. 1830.
Belemnites striatulus *Roemer*, *Nord. Ool.* 165. n. 3.? 1836.
Belemnites impressus *Roemer*, *Ool.* 170. n. 16. t. 16. f. 5. 1836.
Belemnites Bruguieranus *D'Orb. Paléont. Franç. Terr. Jur.* i. 84. t. 6. t. 7. f. 15. 1842.

Hab. Middle Lias.

2. Belemnites irregularis.

Shell (young) short, compressed, posteriorly obtuse, somewhat sharp-pointed; (adult) very long, compressed, rather conical, posteriorly attenuate, rather obtuse, longitudinally striately grooved; aperture compressed; alveolus at an angle of 20° to 22°.

Belemnites irregularis *Schloth. Min. Tasch.* vii. 70. t. 3. f. 2. 1813, *Die Petref.* 48. n. 5.; *Blainv. Belemn.* 104. n. 46., *Zieten*, *Wurt.* 30. t. 23. f. 6.; *Hartmann*, *Wurt.* 16.; *Keferst. Dict. Nat.* 426. n. 52.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 76. t. 5. and 74. t. 4. f. 2—8., *Paléont. univ.* 44. t. 43. f. 9—11., *Moll. Viv. et Fos.* i. 496. n. 13.
Belemnites acuarius *Schloth. Petref.* 46. n. 2. 1820; *Blainv. Belemn.* 96. n. 36.; *Munster*, *Belemn.* 15. t. 2. f. 5, 6.; *Hartmann*, *Wurt.* 15.; *Keferst.* 424. n. 4.; *Roemer*, *Ool.* 174.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 74. t. 7.
Belemnites penicillatus *Schloth. Petref.* n. 10. 1820; *Blainv. Belemn.* 89. n. 29. t. 3. f. 7.; *Sow. Min. Conch.* vi. 181. t. 590. f. 5, 6.?; *Desh. Encycl.* ii. 131. n. 21.; *Hartmann*, *Wurt.* 17.; *Keferst.* 427. n. 70.
Belemnites tubularis *Young*, *Geol. Surv. Yorksh.* t. 14. f. 6. 1822; *Phillips*, *Geol. Yorksh.* t. 12. f. 20.; *Morris*, *Brit. Foss.* 178.
Belemnites digitalis *Blainv. Belemn.* 88. n. 28. t. 3. f. 5, 6. 1827; *Voltz*, *Belemn.* 45. n. 7. t. 2. f. 5.; *Zieten*, *Wurt.* 31. t. 23. f. 9.; *Hartmann*, *Wurt.* 16.; *Keferst.* 425. n. 35.; *Roemer*, *Ool.* 167 n. 8.

Pseudobelus striatus *Blainv. Belemn.* 113. t. 4. f. 13. 1827? (not Defr.)
Belemnites striatus *Keferst.* 428. n. 90. 1834.
Pseudobelus lævis *Blainv. Belemn.* 112. t. 4. f. 14.? 1827.
Belemnites lævis *Roemer, Ool.* 115. n. 4.? 1836.
Belemnites gracilis *Hell. Zieten, Wurt.* 28. t. 22. f. 2. 1830 (not Raspail, 1829, nor Phillips); *Keferst.* 426. n. 46.; *Roemer, Ool.* 175.
Belemnites lagenæformis *Hartmann, Zieten, Wurt.* 33. t. 25. f. 1. 1830; *Keferst.* 426. n. 54.
Belemnites pygmæus *Zieten, Wurt.* 28. t. . f. 9.? 1830; *Keferst.* 427. n. 77.
Belemnites rostratus *Zieten, Wurt.* 30. t. 23. f. 5. 1830 (not rostratus *Raspail*, 1829); *Keferst.* 427. n. 83.; *Roemer, Ool.* 175.
Belemnites longisulcatus *Voltz, Mem.* 57. t. 6. f. 1. 1830; *Keferst.* 426. n. 58; *Roemer, Ool.* 174.
Belemnites tenuis *Munst. Belemn.* t. 22. f, 5. 6. 1830; *Hartmann, Wurt.* 17.; *Keferst.* 428. n. 99.; *Roemer, Ool.* 169. n. 13.
Belemnites semistriatus *Munst. Belemn.* t. 2. f. 4. 1830; *Keferst.* 428. n. 88.

Hab. Upper Lias.

3. Belemnites tripartitus.

Shell (young) elongate, slender, compressed, posteriorly attenuately acute, beneath one-grooved; aperture compressed; (adult) shell conical, compressed, posteriorly acuminate, three-grooved, anteriorly dilated; aperture oval, compressed; alveolus at an angle of 22° to 25°.

Belemnites tripartitus *Schloth. Petref.* 48. n. 6. 1820; *Miller, Trans. Geol. Soc.* 1823, 66. t. 8. f. 10—13. (the extremity); *Blainville, Belemn.* 82. n. 21. t. 4. f. 4.; *Hartmann, Wurt.* 17.; *Keferst. Dict. Nat.* 428. n. 104.; *Roemer, Ool.* .; *D'Orb. Paléont. univ.* t. 45. f. 46., *Terr. Jur. Supp.* t. 2., *Moll. Viv. et Fos.* i. 501., *Belemn.* n. 14.
Belemnites elongatus *Miller, Trans. Geol. Soc.* t. 7. f. 6, 7. (1823); *Blainv. Belemn.* 95. n. 34. t. 4. f. 6.; *Sow. Min. Conch.* vi. 178.; *Zieten, Wurt.* 28. t. 22. f. 6.; *Hartmann, Wurt.* 16.; *Keferst.* 435. n. 39.; *Roemer, Ool.* 169.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 90. n. 8. t. 8. f. 6—11.; *Matheson, Catal.* 258. n. 277.; *Morris, Brit. Fos.* 177.
Belemnites aduncatus *Miller*, t. 8. f. 6. deformed, 1823; *Blainv. Belemn.* 77. n. 17. t. 2. f. 6. t. 8. f. 6—11.; *Keferst.* 424. n. 8.
Belemnites trisulcatus *Blainv. Belemn.* 83. n. 22. t. 5. f. 13. the extremity, 1827; *Hartmann, Zieten*, t. 24. f. 3., *Wurt.* 17.; *Keferst.* 428. n. 105.; *Roemer, Ool.* 172. n. 20.

Belemnites ovatus *Blainv. Belemn.* 88. n. 27. t. 3. f. 4.? 1827; *Desh. Encyc. Méth.* ii. 130. n. 20.

Belemnites unisulcatus *Blainv. Belemn.* 81. t. 5. f. 21. young, 1827; *Desh. Encyc.* ii. 129. n. 13.; *Hartman, Zieten, Wurt.* 31. t. 24. f. 1., *Wurt.* 17.; *Keferst.* 429. n. 112.; *D'Orb. Paléont. Franç.* i. 88. n. 7. t. 8. f. 1—5.

Belemnites compressus *Phillips, Geol. Yorksh.* t. 12. f. 21.? 1829; *Voltz, Belemn.* 53. t. 11. f. n. 2.; *Roemer, Ool.* 171. n. 19.; *D'Orb. Paléont. Franç. Terr. Jur.* t. 6. f. 3—8.; *Matheson, Catal.* 258. n. 278.

Belemnites trifidus *Voltz, Belemn.* 62. n. 15. t. 7. f. 3. 1830; *Keferst.* 428. n. 403.; *Morris, Brit. Fos.* 177.

Belemnites oxyconus *Hel. Zieten. Wurt.* 27. t. 21. f. 5. 1830; *Keferst.* 427. n. 67.; *Roemer, Ool.* 175.

Belemnites subula *Desh. Encyc. Méth.* ii. 130. n. 17. 1830.

Belemnites ornithocephalus *Theodori, Roemer, Ool. Nord.* 169. n. 14. 1836.

Plott, Philos. Trans. xii. t. 3. f. 8. 1764.

Hab. Upper Lias.

4. Belemnites umbilicatus.

Shell elongate, subcylindrical, beneath depressed, posteriorly acuminate, subumbilicated, anteriorly somewhat dilated; aperture roundish; alveolus 19°.

Belemnites umbilicatus *Blainv. Belemn.* 97. n. 37. t. 3. f. 11. 1827; *Desh. Encycl.* 132. n. 23. (1830); *Hartmann, Wurt.* 17. n. 1. 1839; *Keferst. Dict. Nat.* 429. n. 109.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 86. t. 7. f. 6—11., *Moll. Viv. et Fos.* i. 486. *Belemn.* n. 3.

Belemnites clavatus *Blainv. Belemn.* t. 3. f. 12. f. b. c. 1827.

Belemnites subdepressus *Voltz, Mem.* 40. t. 2. f. 1. n. 5. t. 7. f. 4, 5. 1830; *Keferst. Dict. Nat.* 428. n. 93.; *Roemer, Ool.* 166. n. 7.

Belemnites perforatus *Voltz, Belemn.* 63. n. 16. t. 8. f. 2.? 1830; *Keferst. Dict. Nat.* 427. n. 71.

Belemnites ventroplanus *Voltz, Belemn.* 40. n. 4. t. 1. f. 10. 1830; *Keferst. Dict. Nat.* 429. n. 113.; *Roemer, Ool.* 168. n. 10.

Belemnites subclavatus *Zieten, Wurt.* 29. t. 22. f. 5. 1830; *Sthal. Wurt.* 19.; *Keferst.* 428. n. 92.; *Roemer, Ool.* 167. n. 9.

Hab. Middle Lias.

5. Belemnites longissimus.

Shell very elongate, slender, compressed, anteriorly dilated, posteriorly obtusely acuminated, with one longitudinal rib on the sides; aperture compressed.

Belemnites longissimus *Miller*, *Trans. Geol. Soc.* ii. 60. t. 8. f. 1, 2, 1823; *Blainv. Belemn.* 95. n. 35 t. 4. f. 7.; *Zieten*, *Wurt.* 28. t. 21. f. 10, 11.; *Keferst. Dict. Nat.* 426. n. 60.; *Roemer*, *Ool.* 168.; *Morris*, *Brit. Fos.* 177.; *D'Orb. Paléont. Franç. Terr. Jur. Suppl.* t. 1. f. 1—7., *Paléont. univ.* t. 43. f. 1—7., *Moll. Viv. et Fos.* i. 490., *Belemn.* n. 6.

Belemnites cylindricus *Blainv. Belemn.* 94. n. 33. t. 3. f. 10. 1827; *Desh. Encycl.* ii. 131. n. 22.; *Hartmann*, *Wurt.* 16.; *Keferst. Dict. Nat.* 425. n. 33.

Hab. Middle Lias.

6. Belemnites brevis.

Shell short, inflated, rather compressed, posteriorly acuminately pointed, anteriorly dilated; aperture square or compressed; alveolus oblique, at an angle of 28°.

Belemnites brevis *Blainv. Belemn.* 86. n. 26. t. 3. f. 2. (exclus. f. 1.) 1827; *Desh. Encycl.* ii. 131. n. 19.; *Hartmann*, *Wurt.* 16. n. 1.; *Keferst. Dict. Nat.* 425. n. 24.; *Galeotti*, *Brab.* 166. n. 13.; *D'Orb. Paléont. univ.* t. 38. f. 1—7., *Moll. Viv. et Fos.* i. 491., *Belemn.* n. 7.

Belemnites abbreviatus *Sow. Min. Conch.* vi. 178. t. 590. f. 9. (exclus. f. 2, 3.) 1828, not Miller; *D'Orb. Paléont. Franç. Terr. Jur.* i. 92. n. 9. t. 9. f. 1—7; *Bronn*, *Fos. Conch.* 21. t. 2. f. 41, 42.

Belemnites breviformis *Voltz*, *Mem.* 43. n. 6. t. 2. f. 2, 3, 4. 1830; *Munster*, *Zieten*, *Wurt.* 27. t. 21. f. 7.; *Keferst. Dict. Nat.* 425. n. 25.; *Roemer*, *Ool.* 164. n. 1. t. 16. f. 8.; *Morris*, *Brit. Fos.* 177.

Belemnites pyramidatus *Schub. Zieten*, 29. t. 22. f. 9.? 1830; *Keferst.* 427. n. 76.

B. pyramidalis *Roemer*, *Ool.* 169. 172. n. 21.

Belemnites incurvatus *Keferst.* 426. n. 51. 1834.

Belemnites conulus *Munster*, *Roemer*, *Nord. Ool.* 165. n. 2.

Belemnites acutus *Potiez & Mich.* 21. n. 1. 1838.

Hab. Upper Lias.

7. Belemnites acutus.

Shell short, conical, rather compressed, posteriorly acuminate; aperture oval; alveolar cavity from 18° to 20°.

Belemnites acutus *Miller*, *Trans. of Geol. Soc.* ii. t. 8. f. 9. 1823 (not Blainville, 1827); *Sowerby*, *Min. Conch.* vi. 178. t. 590. f. 7, 8. 10.; *D'Orb.* 1842, *Paléont. Franç. Ter. Jur.* i. 94. n. 10. t. 9. f. 8—14., *Paléont. univ.* t. 38. f. 8—14., *Moll. Viv. et Fos.* t. 36. f. 1—3.; *Morris*, 1843, *Brit. Fos.* 177.

B. brevis *Blainv. Belemn.* 86. n. 26. t. 3. f. 1. exclus. f. 2, 3. 1827.
B. pyramidalis *Munster, Zieten, Wurt.* t. 24. f. 5.?; *Lind.* 1830. 1699, t. 25. f. 1583.?

Hab. Superior Lias. France and England.

8. Belemnites curtus.

Shell short, conical, compressed, obtuse at apex, two-grooved; aperture triangular; alveolus with an angle of 28°.

Belemnites brevirostris *D'Orb. Paléont. Franç. Terr. Jur.* i. 96. n. 11. t. 10. f. 1—6. 1842 (not brevirostris *Raspail*, 1829).
Belemnites curvus *D'Orb. Paléont. univ.* t. 42. f. 1—6. 1846, *Moll. Viv. et Fos.* i. 495. *Belemn.* n. 11.

Hab. Middle Lias.

9. Belemnites Fournelianus.

Shell short, compressed, posteriorly obtuse, laterally impressed; aperture compressed, oblong; alveolus at an angle of 17°.

Belemnites Fournelianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 98. n. 12. t. 10. f. 7. 14., *Paléont. univ.* t. 42. f. 7. 14., *Moll. Viv. et Fos.* i. 489., *Belemn.* n. 5.

Hab. Middle Lias.

10. Belemnites nodotianus.

Shell oblong, compressed, anteriorly dilated, posteriorly obtusely mucronate, beneath grooved; aperture compressly square; alveolus 25°.

Belemnites incurvatus *Zieten, Wurtemb.* 29. t. 22. f. 7. 1830 (not incurvatus *Raspail*, 1829); *Keferst. Dict. Nat.* 426. n. 51.; *Roemer, Ool.* 174.
Belemnites nodotianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 98. n. 13. t. 10. f. 15. 20. 1842, *Paléont. univ.* t. 42. f. 15. 20., *Moll. Viv. et Fos.* i. 495., *Belemn.* n. 12.

Hab. Upper Lias.

Fossils in Lower Oolite.

11. Belemnites giganteus.

Shell elongate, compressed, acuminate or somewhat inflated, posteriorly acuminated, laterally grooved, anteriorly dilated; aperture oval; alveolus at angle of from 20° to 23°.

Klein, Descript. Tab. t. 9. f. 314. 1731; *Borguet, Trait. des Petrif.* t. 45. f. 576. 1742; *Knorr, Mon.* iii. iv. 354.; *Parkinson, Org. Rem.* iii. 126–128. t. 8. f. 8.

Belemnites giganteus *Schloth. Min. Taschenb.* vii. 70. 1813, *Petref.* 45. n. 1. 1820; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 426. n. 46.; *Roemer, Ool.* 174.; *D'Orb. Paléont. Franc. Terr. Jur.* i. 112. t. 14, 15., *Paléont. univ.* t. 47, 48., *Moll. Viv. et Fos.* i. 504., *Belemn.* n. 15. (t. 35, 36. theoretical restoration).

Belemnites ellipticus *Miller, Trans. Geol. Soc.* ii. t. 8. f. 14–17. 1823; *Blainv. Belemn.* 102. n. 44.; *Keferst.* 425. n. 38.; *Roemer, Ool.* 174.; *Morris, Brit. Fos.* 177.

Belemnites abbreviatus *Miller, Trans. Geol. Soc.* 59. t. 8. f. 9, 10. young, 1823; *Blainv. Belemn.* 91. n. 31. t. 4. f. 5.; *Sow. Min. Conch.* vi. 179. t. 590. f. 2, 3. (exclus. f. 9.); *Keferst.* 424. n. 2.

Belemnites compressus *Blainv. Belemn.* 84. n. 24. t. 9. 1827; *Sow. Min. Conch.* vi. 692. t. 590. f. 4.; *Desh. Ency.* ii. 129. n. 15.; *Zieten, Wurt.* 26. t. 20. f. 2.; *Hartmann, Wurt.* 16.; *Keferst.* 426. n. 29.

Belemnites quinquesulcatus *Blainv. Belemn.* 83. n. 22. t. 2. f. 8. young female, 1827; *Phillips, Geol. Yorksh.* t. 9. f. 35.; *Zieten, Wurt.* 26. t. 20. f. 3.; *Hartm. Wurt.* 17.; *Keferst.* 427. n. 81.; *Roemer, Ool.* 173. n. 22.; *Morris, Brit. Fos.* 177.

Belemnites gladius *Blainv. Belemn.* 86. n. 25. t. 2. f. 10., *Dict. Sc. Nat.* f. 10. 1827; *Desh. Encyc.* ii. 136. n. 18. 1830; *Keferst.* 426. n. 84.; *Roemer, Ool.* 174.

Belemnites gigas *Blainv. Belemn.* 91. n. 32. t. 5. f. 20. (exclus. t. 3. f. 9.) 1827.

Belemnites aalensis *Voltz, Mem.* 60. t. 4. and 7. i. f. 7. 1830; *Zieten, Wurt.* 25. t. 24. f. 6.; *Keferst. Dict. Nat.* 423. n. 1.; *Roemer*, 174. n. 24.; *Morris, Brit. Fos.* 177.

Belemnites longus *Voltz, Mem.* 58. n. 13. t. 3. f. 1. 1830; *Keferst.* 426. n. 59.; *Roemer, Ool.* 174.

Belemnites grandis *Schubl. Zieten, Wurt.* 26. t. 20. f. 1. 1830; *Keferst.* 426. n. 48.; *Roemer, Ool.* 174.

Belemnites acuminatus *Schubl. Zieten, Wurt.* t. 26.? t. 20. f. 5. 1830; *Keferst.* 424. n. 5.; *Roemer, Ool.* 175.

Belemnites bipartitus *Hartmann, Zieten, Wurt.* 32.? t. 14. f. 7. 1830 (not *Blainv.* 1827); *Hartm. Wurt.* 16.; *Keferst.* 424. n. 18.

Belemnites bicanaliculatus *Hartm. Zieten, Wurt.* 32.? t. 24. f. 9. 1830 (not Blainv. 1827), *Hartm. Wurt.* 15.; *Keferst.* 424. n. 17.

Belemnites quinquecanaliculatus *Hartm. Zieten, Wurt.* 32.? t. 24. f. 12. 1830; *Keferst.* 427. n. 81.

Belemnites Milleri *Desh. Encyc.* ii. 129. 1830.

Belemnites anomalus *Roemer, Ool.* 173 n. 23.? 1836.

Hab. Lower Oolite.

Fossils in Oxford Clay.

12. Belemnites excentralis.

Shell short, inflated, laterally impressed, rather square-shaped, posteriorly sharply curved, anteriorly dilated; aperture somewhat square; alveolus at an angle of 19°.

Belemnites excentralis *Young*, *Geol. Yorksh.* t. 14. f. 4, 5. 1822; *D'Orb. Paléont. univ.* t. 57., *Moll. Viv. et Fos.* i. 520. n. 25.
Belemnites excentricus *Blainv. Belemn.* 90. n. 30. t. 3. f. 8. 1827; *Keferst. Dict. Nat.* 425. n. 40.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 120. n. 26. t. 17.
Belemnites abbreviatus *Morris*, *Brit. Fos.* 127. (in part) 1843.
Belemnites inæqualis *Roemer*, *Ool.* 166. n. 5. t. 12. f. 1. 1836.
Belemnites lævis *Roemer*, *Ool.* 165. n. 1.

Hab. Lower, Middle, and Upper Oxford Clay.

13. Belemnites Puzozianus.

Shell elongate, cylindrical, compressed, posteriorly straightly acuminate, beneath rather compressly grooved; aperture compressed, rather square; alveolus at an angle of 16½°.

Belemnites Puzozianus (pars) *D'Orb. Paléont. Franç. Terr. Jur.* i. 118. t. 16. f. 1—6. 1842, *Paléont. univ.* t. 50. f. 9. t. 55. f. 1—6. t. 56., *Paléont. étrang.* t. 31., *Paleont. Franç. Terr. Jur. Supp.* t. 3. f. 9., *Moll. Viv. et Fos.* i. 519.
Belemnites Owenii *Pratt*, *Owen*, *Phil. Trans.* 1844, t. 2. f. 1—4. (not animal and phragmacone).
B. attenuatus *Mantell*, *Phil. Trans.* 1848, t. 15. f. 2, 3.

Hab. Lower and Middle Oxford Clay.

a, *b*. Fossil large, with part of the cone of the shell. Oxford Clay, Wiltshire.
c, *d*. Small, with part of the cone of the shell. Oxford Clay, Wiltshire.
e. Style only. Oxford Clay, Wiltshire.

14. Belemnites magnificus.

Shell elongate, cylindrical, depressed, acuminate; beneath flat, posteriorly narrowly channeled; aperture rather square; alveolus 27½°.

Belemnites magnificus *D'Orb. Murch. Vern. and Keys. Russia*, ii. 425. n. 7. 1846; *D'Orb. Paléont. univ.* t. 59. f. 4—8., *Paléont. étrang.* t. 33. f. 4—8., *Moll. Viv. et Fos.* i. 524., *Belemn.* n. 28.

Hab. Lower Oxford Clay.

15. Belemnites Panderianus.

Shell short, rather conical, laterally compressed; posteriorly beneath impressed, acuminate; aperture compressed; alveolus 22°.

Belemnites aalensis *Fischer*, *Oryct. Genv. Moscow*, 173. t. 49. f. 1.? 1837 (not Voltz).

Belemnites excentricus *Fischer*, *Revue des Fos. de Mosc.* n. 5.? 1843 (not Blainv.).

Belemnites Panderianus *D'Orb. Murch. and Vern. Russia*, 423. n. 6. t. 30. 1844, *Paléont. univ.* t. 61., *Paléont. étrang.* 35., *Moll. Viv. et Fos.* i. 527., *Belemn.* n. 30.

Hab. Oxford Clay. Banks of the Volga.

16. Belemnites Russiensis.

Shell dilated, depressly conical, posteriorly longitudinally sulcated, groove short, disappearing; aperture depressed; alveolus at an angle of 20 degrees.

Belemnites Russiensis *D'Orb. Murch. Vern. and Keys. Russia*, ii. 422. n. 4. t. 29. f. 10—16. 1844; *D'Orb. Paléont. univ.* t. 62. f. 1—6., *Paléont. étrang.* t. 36. f. 1—7., *Moll. Viv. et Fos.* i. 529. n. 31.

Hab. Oxford Clay, Russia. Rare.

17. Belemnites Kirghisensis.

Shell elongately conical, somewhat square, beneath depressed, posteriorly longitudinally grooved; groove short, disappearing; aperture square; alveolus with an angle of 20 degrees.

Belemnites Kirghiensis *D'Orb. Murch. Vern. and Keys. Russia*, ii. 423. n. 5. t. 29. f. 17—21. 1844; *D'Orb. Paléont. univ.* t. 62. f. 8—11., *Paléont. étrang.* t. 36. f. 8—11., *Moll. Viv. et Fos.* i. 529. n. 32.

Hab. Russia. Very rare.

18. Belemnites borealis.

Shell elongate, rather spindle-shaped, anteriorly and posteriorly oval, compressed, impressed on the sides; aperture oval.

Belemnites borealis *D'Orb. Murch. Vern. and Keys. Russia*, ii. 420. n. 2. t. 28. f. 15—22. 1844; *D'Orb. Paléont. univ.* t. 62. f. 12—18., *Paléont. étrang.* t. 36. f. 12—18., *Moll. Viv. et Fos.* i. 530. n. 33.

Hab. Oxford Clay. Banks of the Volga.

Fossils in Kimmeridge Clay.

19. Belemnites Sonichii.

Shell elongate, somewhat lanceolate, depressed, posteriorly acuminated, beneath flattened; aperture depressed, rather triangular; alveolus ——— ?

Belemnites Sonichii *D'Orb. Paléont. Franç. Terr. Jur.* i. 133. n. 34. t. 22. f. 4—8., *Paléont. univ.* t. 64. f. 4—8., *Moll. Viv. et Fos.* i. 536. n. 39.

Hab. Portland Oolite.

Fossils in Greensand.

20. Belemnites subquadratus.

Shell elongate, subcylindrical, smooth, anteriorly rather square, posteriorly rather depressed, inferiorly flatly depressed, apex somewhat acute.

Belemnites subquadratus *Roemer, Nord. Ool.* 166. t. 16. f. 6. 1836, *Nord. Kreidegeb.* 83. n. 1.; *Geinitz, Charak.* 68., *Charak. Kreid.* 68.; *D'Orb. Paléont. univ.* t. 71. f. 1—4., *Terr. Cret. Sup.* t. 6. f. 1—4., *Moll. Viv. et Fos.* i. 543. n. 45.

Belemnites Cornelianus *D'Orb. Terr. Cret.* i. 618. 1842.

Hab. (Etage Néocomien.)

†† *Style elongate, often clubbed, and with lateral Grooves.*—Fossils in Lias. Clavati *D'Orb. Moll. Viv. et Fos.* i. 481.; *Bronn*, l. c. 150.

21. Belemnites clavatus.

Shell very elongate, club-shaped, anteriorly dilated, slender in the middle, posteriorly inflated, rather mucronate, laterally bisulcate; aperture compressed; alveolus —— ?

Belemnites clavatus *Blainv. Belemn.* 97. n. 38. t. 3. f. 12. a. b. *Exclus.* f. c. 1827; *Desh. Encycl.* 130. n. 24. 1830; *Hartmann, Wurt.* 16. n. 1.; *Keferst. Dict. Nat.* 425. n. 28.; *Roemer, Ool.* 168. n. 10.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 103. t. 11. f. 10—20., *Paléont. univ.* t. 41. f. 19—23., *Moll. Viv. et Fos.* i. 487., *Belemn.* n. 4. t. 34. f. 4, 5.

Belemnites pistilliformis *Sow. Min. Conch.* 177. t. 589. f. 3. 1828; *Hartmann, Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 427. n. 69.; *Roemer, Ool.* 168. n. 11.; *Morris, Brit. Fos.* 177.

Belemnites subclavatus *Voltz, Belemn.* t. 1. f. 11. 1830; *Roemer, Ool.* 167. n. 9.

Hab. Middle Lias.

22. Belemnites exilis.

Shell very long, subulate, slender, compressed, one-ribbed on the sides, posteriorly sharply acuminate; aperture compressed, rather square, angular; alveolus at an angle of 20°.

Belemnites exilis *D'Orb. Paléont. Franç. Terr. Jur.* i. 101. t. 15. f. 6—12. 1842, *Paléont. univ.* t. 41. f. 6—12., *Moll. Viv. et Fos.* i. 493., *Belemn.* n. 9.

Hab. Upper Lias, very rare.

23. Belemnites Tessonianus.

Shell elongate, slender, posteriorly obtuse, anteriorly dilated, above with two grooves, underneath with three grooves; alveolus oblique, at an angle of 27°.

Belemnites Tessonianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 103. t. 11. f. 13—18. 1842, *Paléont. univ.* t. 41. f. 13—18., *Moll. Viv. et Fos.* i. 494., *Belemn.* n. 10.

Hab. Upper Lias, not common.

** *Ventral Groove distinct.* — Gastrocœli *D'Orb.* l. c. i. 481.; *Bronn, Gesch. der Naturg.* iii. 150. Notosiphites *Duval, Belem.* 23. 29. 38.; see *D'Orb. Moll. Viv. et Fos.* i. 466.

† *Style elongate, lanceolate, or conical, with a ventral Groove extending the whole length below. Lateral Grooves none.*— Fossils in Lower and Great Oolite. Canaliculati *D'Orb. Moll. Viv. et Fos.* i. 481.; *Bronn*, l. c. 150.

24. Belemnites canaliculatus.

Shell elongate, depressed, cylindrical, posteriorly acuminately obtuse, beneath longitudinally grooved; groove not interrupted, equally impressed; aperture depressed, beneath sinuated; alveolus at an angle of 25°.

Belemnites canaliculatus *Schloth. Petref.* 49. n. 9. 1820; *Hartm. Wurt.* 16.; *Keferst. Dict. Nat.* 425. n. 26.; *Zieten, Wurt.* 21. f. 3.; *Roemer, Ool.* 176. n. 26.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 109. t. 13. f. 1—5., *Paléont. univ.* t. 51. f. 5, 6., *Moll. Viv. et Fos.* i. 510., *Belemn.* n. 18.

Hab. Lower Oolite.

25. Belemnites sulcatus.

Shell elongate, compressed anteriorly, depressed posteriorly, equal, apex obtusely mucronate, grooved beneath; the groove disap-

pearing posteriorly; aperture compressed; alveolus at an angle of 18° to 18½°.

Plott, Hist of Oxford, ii. f. 6.

Belemnites sulcatus *Miller*, *Trans. Geol. Soc.* ii. 59. t. 8. f. 3, 4. 1823; *Keferst. Dict. Nat.* 428. n. 98.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 105. t. 12. f. 1—8., *Paléont. univ.* t. 49. f. 1—8., *Moll. Viv. et Fos.* i. 508., *Belemn.* n. 16. t. 37. f. 10—14.; *Morris, Brit. Fos.* 117.

Belemnites apiciconus *Blainv. Belemn.* 69. t. 2. f. 2. 1827; *Keferst.* 424. n. 13. a.

Hab. Lower Oolite.

26. Belemnites unicanaliculatus.

Shell elongate, compressed, rather conical, posteriorly sharply obtuse, underneath longitudinally grooved; grooves anteriorly and posteriorly interrupted; aperture compressed, oval; alveolus at an angle of 22°.

Belemnites acutus *Blainv. Belemn.* 69. t. 2. f. 3. 1827 (not Miller, 1823), *Dict. Sci. Nat.* 1827, f. 4.; *Desh. Encyc.* ii. 176. n. 26. 1830; *Zieten, Wurt.* 26. t. 21. f. 1.?; *Keferst. Dict. Nat.* 424. n. 7.; *Mich. et Potiez, Gal.* i. 21. n. 1.

Belemnites Blainvillei *Voltz, Belemn.* 37. t. 1. f. 9. 1830 (not Blainv. Catullo, 1829); *Desh. Encyc. Méth.* ii. 127. n. 10.; *Keferst.* 424. n. 21.; *Roemer, Ool.* 176. n. 27.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 107. t. 12. f. 9—16.

Belemnites unicanaliculatus *Hartm. Zieten, Wurt.* 32. t. 24. f. 8.; *Keferst.* 429. n. 110.; *D'Orb. Paléont. univ.* t. 49. f. 9—16. t. 50. f. 1, 2., *Paléont. Franç. Terr. Jur. Suppl.* t. 3. f. 1, 2., *Moll. Viv. et Fos.* i. 509., *Belemn.* n. 17.

Belemnites sulcatus *Munster.*

Hab. Lower Oolite.

27. Belemnites Bessinus.

Shell elongate, anteriorly compressed, posteriorly depressed, beneath longitudinally grooved; groove posteriorly interrupted; aperture compressed, situated beneath; alveolus at an angle of 20°.

Belemnites hastatus *Deslongch. Mém. Soc. Linn. de Norm.* vi. 105. 1. t. f. 4. 1837 (not Blainv.).

Belemnites Bessinus *D'Orb. Paléont. Franç. Terr. Jur.* i. 110. t. 13. f. 7—13. 1842, *Paléont. univ.* t. 51. f. 7—13., *Moll. Viv. et Fos.* i. 511., *Belemn.* 19.

Hab. Lower Oolite.

28. Belemnites Fleuriansus.

Shell elongate, slender, anteriorly compressed, attenuated, posteriorly depressed, very acute, beneath longitudinally grooved; groove posteriorly and anteriorly not interrupted; aperture compressed; alveolus?

Belemnites Fleuriansus *D'Orb. Paléont. Franç. Terr. Jur.* i. 111. t. 13. f. 14—18., *Paléont. univ.* t. 51. f. 14—18., *Moll. Viv. et Fos.* i. 512., *Belemn.* n. 20.

Hab. Great Oolite, rare.

†† *Style elongate, generally lanceolate, with distinct lateral Grooves for a great part of the length. The ventral Groove is very deep in front.*—Hastati. Hibolithus *Montf. Conch. Syst.* i. 387. t. 97. Porodragus *Montf.* 1808. Actinocamax *Voltz, Hartm.*

Fossils in Lias.

29. Belemnites tricanaliculatus.

Shell elongate, conical, posteriorly obtuse, longitudinally trisulcate; sulci not interrupted, excavated; aperture triangular; alveolus with an angle of 30°.

Belemnites canaliculatus *Bauhin*, 34.? 1698.

Belemnites tricanaliculatus *Hartmann, Zieten, Wurt.* t. 32. t. 24. f. 10., *Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 428. n. 102.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 100. n. 14. t. 14. f. 1—5., *Paléont. univ.* t. 41. f. 1—5., *Moll. Viv. et Fos.* i. 492., *Belemn.* n. 8.

Belemnites quadricanaliculatus *Hartmann, Zieten, Wurt.* 32. t. 24. f. 2. 1830, *Wurt.* 17.; *Keferst.* 427. n. 79.

Hab. Upper Lias.

Fossils in Oxford Clay.

30. Belemnites hastatus.

Shell elongate, slender, spindle-shaped, anteriorly dilated, compressed, posteriorly inflated, depressed, acutely mucronate, beneath grooved; groove disappearing posteriorly, interrupted; aperture rounded; alveolus at an angle of from 11 to 18 .

Bauhin, Hist. Fontes. 34. 1598; *Lloyd, Phil. Trans.* xxv. f. 1705.; *Borguet, Trait. des Petrif.* t. 45. f. 374. 1742; *Longius*, t. 37. f. 3.; *Journal de Phys. An.* ix. t. 1. f. D. E.

Hibolithes hastatus *Montf. Conch. Syst.* 386. 1808.

Porodragus restitutus *Montf. Conch. Syst.* 390. 1808.

Belemnites fusiformis *Parkins, Org. Rem.* iii. 122. t. 8. f. 13. 1811; *Young & Bird, Geol. Yorksh.* t. 14. f. 2.; *Miller, Trans. Geol.*

Soc. ii. 61. t. 7. f. 22. t. 9. f. 5. 7.; *Blainv. Belemn.* 74. n. 14.; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 426. n. 43.; *Roemer, Ool.* 176. n. 26.; *Pusch, Polens. Paléont.* 162. n. 3.; *Morris, Brit. Fos.* 177.

Belemnites lanceolatus *Schloth. Taschenb.* vii. 111. 1813 (not lanceolatus *Sow.* 1829), *Petrif.* 49. n. 8.; *Pusch, Polens. Paléont.* 162. n. 2.

Belemnites hastatus *Blainv. Belemn.* 71. n. 12. t. 1. f. 4. t. 2. f. 4. t. 5. f. 3., *Dict. Sc. Nat.* 1827, f. 5.; *Raspail, Ann. Sc. d'Observ.* t. 8. f. 91.; *Desh. Encyc.* ii. 127. n. 9.; *Hartm. Wurt.* 16.; *Keferst.* 426. n. 50.; *Deslongch. Mém. Soc. Linn.* 38. t. 1. f. 4, 5.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 121. n. 27. t. 18, 19., *Paléont. du Voy. de M. Homm. de Hell.* iii. 420. n. 1., *Paléont. univ.* t. 52, 53., *Moll. Viv. et Fos.* i. 513., *Belemn.* n. 21. t. 37. f. 15—20.; *Matheson, Catal.* 258. n. 279.

Belemnites semihastatus *Blainv. Belemn.* 72. n. 13. t. 2. f. 5. t. 5. f. 1, 2. 1827, *Zieten, Wurt.* 22. t. 22. f. 4.; *Hartmann, Wurt.* 17.; *Keferst. Dict.* 428. n. 88.; *Roemer, Ool.* 175. n. 25.; *Pusch, Polens. Paléont.* 162. n. 6.

Belemnites gracilis *Raspail, Ann. Sc. des Observ.* t. 5. f. 17, 18. 1829; *Morris, Brit. Fos.* 177.

Belemnites ferruginosus *Voltz, Mem.* 36. t. 1. f. 8. 1830; *Keferst.* 425. n. 41.

Actinocamax fusiformis *Voltz, Mem.* 34. t. 1. f. 6. 1830.

Actinocamax lanceolatus *Hartm. Zieten*, t. 25. f. 3. 1830.

Belemnites semisulcatus *Munster, Belemn.* 7. t. 1. f. 1. 8. 15. 1830; *Keferst.* 428. n. 87.

Belemnites pusillus *Munster, Belemn.* 8. t. 1. f. 9, 10. young, 1830; *Keferst.* 427. n. 74.; *Roemer, Ool.* 177.

Belemnites deformis *Munster, Belemn.* 8. t. 1. f. 11. 1830; *Keferst.* 427. n. 34.

Belemnites plano-hastatus *Roemer, Nord. Ool.* 177. n. 30. t. 12. f. 2. 1836.

Belemnites fusoïdes *Potiez et Mich. Gall.* i. 22. n. 5. 1838.

Hab. Lower and Middle Oxford Clay.

31. Belemnites Duvalianus.

Shell elongate, slender, rather spindle-shaped, compressed, anteriorly attenuated, posteriorly acuminated, beneath grooved; groove narrow, not interrupted; aperture oval, compressed.

Belemnites Duvalianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 127. n. 29. t. 20. f. 6—10. 1842, *Paléont. univ.* t. 54. f. 6, 7., *Moll. Viv. et Fos.* i. 518., *Belemn.* n. 23.

Hab. Lower Oxford Clay.

32. Belemnites coquandus.

Shell elongate, club-shaped, anteriorly attenuated, posteriorly thickened, sharp-pointed, beneath smooth, laterally grooved; grooves excavated posteriorly, and forked; alveolus?

Belemnites coquandus *D'Orb. Paléont. Franc. Terr. Jur.* i. 130. n. 31. t. 21. f. 11—18. 1842, *Paléont. univ.* t. 63. f. 11—18., *Moll. Viv. et Fos.* i. 533. n. 36.; *Matheson, Catal.* 258. n. 282.

Hab. Middle Oxford Clay.

33. Belemnites Sauvanausus.

Shell elongate, anteriorly attenuate, posteriorly thickened, sharp-pointed, beneath anteriorly deeply slit; aperture somewhat square, beneath sinuated; alveolus, angle 20°.

Belemnites Sauvanausus *D'Orb. Paléont. Franç. Terr. Jur.* i. 127. n. 30. t. 21. f. 1—10. 1842, *Paléont. univ.* t. 63. f. 1—10., *Moll. Viv. et Fos.* i. 532. n. 35.; *Matheson, Catal.* 258. n. 281.

B. Sauvanosus *D'Orb.* l. c. 81.

Hab. Middle Oxford Clay.

34. Belemnites Dedayanus.

Shell elongate, somewhat spindle-shaped, anteriorly compressed attenuated, impressed laterally, posteriorly acuminate, beneath one-grooved; groove posteriorly interrupted; aperture compressed, sinuated.

Belemnites Dedayanus *D'Orb. Paléont. Franç. Terr. Jur.* i. 126. n. 28. t. 20. f. 1—5. 1842, *Paléont. univ.* t. 54. f. 1—5., *Moll. Viv. et Fos.* i. 531. n. 34.

Hab. Middle Oxford Clay.

35. Belemnites enigmaticus.

Shell very short, obtuse, smooth, posteriorly obtusely rounded; aperture somewhat square, above sinuated; alveolus with an angle of 20°.

Belemnites enigmaticus *D'Orb. Paléont. Franç. Terr. Jur.* i. 131. n. 32. t. 22. f. 1—3., *Paléont. univ.* t. 64. f. 1—3., *Moll. Viv. et Fos.* i. 534. n. 37.

Hab. Middle Oxford Clay.

36. Belemnites latisulcatus.

Shell elongate, slender, spindle-shaped, anteriorly alternately depressed, posteriorly depressed, acute, beneath longitudinally grooved; groove not interrupted; aperture depressed.

Belemnites latisulcatus *D'Orb. Paléont. univ.* t. 50. f. 3—8. 1846, *Paléont. Franç. Terr. Jur. Supp.* t. 3. f. 3—8., *Moll. Viv. et Fos.* i. 517., *Belemn.* n. 22.

Hab. Oxford Clay, and Kelloway Rock.

37. Belemnites Grantianus.

Shell elongate, cylindrical, compressed, beneath longitudinally broadly grooved; groove excavated; aperture roundedly compressed; alveolus at an angle of 17°.

Belemnites canaliculatus *Grant, Trans. Geol. Soc.* 2d ser. v. t. 23. f. 2, 3. 1837 (not Schloth.).
Belemnites Grantianus *D'Orb. Paléont. univ.* t. 58. 1846, *Paléont. étrang.* t. 32., *Moll. Viv. et Fos.* i. 523., *Belemn.* n. 27.

Hab. India. Kellovian deposit?

38. Belemnites Altdorfensis.

Shell rather elongate, conical, anteriorly and posteriorly depressed, longitudinally grooved; groove anteriorly disappearing; aperture roundedly depressed; alveolus at an angle of 20°.

Belemnites Helveticus *Defrance collection; Blainv. Belemn.* 68.
Belemnites Altdorfensis *Blainv. Belemn.* 67. n. 9. t. 2. f. 1. 1827; *Desh. Encyc.* ii. 126. n. 7.; *Hartm. Wurt.* 15.?; *Keferst. Dict. Nat.* 424. n. 10.; *D'Orb. Paleont. univ.* t. 55. f. 7. 11. t. 59. f. 1. 3., *Paléont. étrang.* t. 33. f. 1—3., *Moll. Viv. et Fos.* i. 522. n. 26.
Belemnites absolutus *Fischer, Oryct. Genv. Moscow*, 173. t. 49. f. 2. 1837; *D'Orb. Murch. and Vern. Russia*, ii. 421. n. 3. t. 29. f. 1—9.
Belemnites Beaumontianus *D'Orb. Paléont. Franç. Terr. Jur.* 118. t. 16. f. 7—11.

Hab. Lower Oxford Clay.

39. Belemnites Volgensis.

Shell elongate, somewhat spindle-shaped, anteriorly square-shaped, posteriorly depressed, longitudinally broadly grooved; groove excavated, continuous; aperture square; alveolus 27°.

Belemnites Volgensis *D'Orb. Murch. and Vern. Russia*, ii. 410. n. 1. t. 28. f. 1—14. 1844, *Paléont. univ.* t. 60., *Paléont. étrang.* t. 34., *Moll. Viv. et Fos.* i. 525. n. 29.

Hab. Oxford Clay. Banks of the Volga.

Fossils in Coralline Grit.

40. Belemnites Rogerianus.

Shell elongate, slender, spindle-shaped, depressed, posteriorly acuminate, anteriorly attenuated, beneath anteriorly grooved; groove disappearing in the middle.

Belemnites pistilliformis *Blainv. Belemn.* t. 5. f. 17. 1827 (exclus. f. 14—16.).

Belemnites Rogerianus *D'Orb. Paléont. Franç. Terr. Jur.* 132. n. 33. t. 22. f. 9. 15. 1842, *Paléont. univ.* t. 64 f. 9. 15., *Moll. Viv. et Fos.* i. 535. n. 38.

Hab. Upper Oxford Clay.

Fossils in Greensand.

41. Belemnites bipartitus.

Shell elongate, spindle-shaped, anteriorly narrowed, somewhat four-sided, posteriorly acuminated, acute, laterally compressed. longitudinally grooved; above rounded; beneath anteriorly grooved.

Pseudobelus bipartitus *Blainv. Belemn. Sup.* 113. t. 5. f. 19. 1828.

Belemnites bicanaliculatus *Blainv. Belemn. Sup.* 120. t. 5. f. 9. (exclus. f. 8.) 1828; *Raspail, Ann. Sc. Observ.* 58.

Belemnites bisulcus *Raspail*, l. c. iii. 88. t. 4. f. 20, 21. 1829.

Belemnites bipartitus *Catullo, Ann. des Sc. Nat. di Bologna*, v. 311. 1829; *Desh. Encyc. Méth.* 128. n. 11.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 45. n. 2. t. 3. f. 6. 12., *Paléont. univ.* t. 69. f. 6. 12., *Moll. Viv. et Fos.* i. 539. n. 43.; *Duval, Belemn.* 41. t. 1. f. 1. 8.

Hab. Greensand (Etage Néocomien).

42. Belemnites pistilliformis.

Shell elongate, rather spindle-shaped, anteriorly acuminate, posteriorly acutely pointed, laterally and longitudinally two-grooved, beneath grooved anteriorly; alveolus 20.

Beudant, Observ. sur les Belemn. t. 3. f. 9. 1810.

Belemnites minimus *Blainv. Belemn.* 119. t. 4. f. 1. t. 5. f. 6. (not minimus *Listèr.*)

Belemnites pistilliformis *Blainv. Belemn.* 98. t. 5. f. 14, 15. (exclus. f. 16, 17) 1827 (not Roemer, 1835; not Sow. 1829); *Raspail, Ann. Sc. Observ.* i. 327. t. 8. f. 95. 97. 100. 102.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 53. n. 6. t. 6. f. 1. 4., *Paléont. univ.* t. 34. f. 1. 4. t. 68. f. 9, 10. t. 70.. *Terr. Cret.*

Supp. t. 5., *Moll. Viv. et Fos.* i. 540. n. 44.; *Duval, Belemn.* 72. t. 8. f. 10. 16.

Belemnites subfusiformis *Raspail, Hist. Nat. Belemn.* 55. t. 8. f. 93. 1829; *D'Orb. Paléont. Franç. Terr. Cret.* i. 53. n. 5. t. 4. f. 9. 16.; *Duval, Belemn.* 66. t. 9, 10.

Belemnites crassior *Raspail, Ann. Sc. d'Observ.* 57. t. 8. f. 84. 1829.

Belemnites crassissimus *Rasp.* l. c. 327. t. 8. f. 85. 87. 1829.

Belemnites aculeus echini *Rasp.* l. c. 327. t. 8. f. 87. 1829.

Belemnites hastatus *Rasp.* l. c. t. 8. f. 91. 1829.

Belemnites symmetricus *Rasp.* l. c. 54. t. 8. f. 90. 101. 1829.

Belemnites præmorsus *Rasp.* l. c. 55. t. 8. f. 27. 1829.

Belemnites contortus *Rasp.* l. c. 56. t. 8. f. 28, 29. 1829.

Belemnites oblongus *Rasp.* l. c. 52. t. 8. f. 82. 1829.

Belemnites navicula *Rasp.* l. c. 51. t. 8. f. 79. 1829.

Belemnites brevirostris *Rasp.* l. c. 51. t. 8. f. 80. 1829.

Belemnites fusus *Rasp.* l. c. 52. t. 8. f. 81. 1829.

Belemnites gemmatus *Rasp.* l. c. 51. t. 8. f. 77. 1829.

Belemnites rostratus *Rasp.* l. c. 51. t. 8. f. 78. 1829.

Actinocamax fusiformis *Voltz, Obs. sur les Belemn.* 34. t. 1. f. 6. young, 1830.

Actinocamax Milleri *Voltz, Obs. sur les Belemn.* 35. t. 1. f. 7. adult, 1830.

Belemnites pistillum *Roemer, Nord. Ool.* 108. t. 16. f. 7. 1836, *Nord. Kreid.* 83. n. 2.

Hab. Greensand (Etage Néocomien).

43. Belemnites bicanaliculatus.

Shell elongate, subcylindrical, anteriorly rather four-sided, posteriorly obtusely acuminate, laterally anteriorly longitudinally grooved, beneath anteriorly grooved.

Belemnites bicanaliculatus *Blainv. Belemn. Supp.* 120. t. 5. f. 8. (exclus. f. 9.) 1828; *Keferst. Dict. Nat.* 424. n. 16.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 47. n. 3. t. 3. f. 13. 16., *Paléont. univ.* t. 69. f. 13. 16. t. 71. f. 5. 8., *Terr. Cret. Supp.* t. 6. f. 5. 8., *Moll. Viv. et Fos.* i. 544. n. 47.

Hab. Greensand (Etage Néocomien).

44. Belemnites semicanaliculatus.

Shell elongate, cylindrical, posteriorly acuminate, pointed, anteriorly compressed on the sides, beneath sulcate; groove disappearing in the middle of its length; aperture entire; alveolus at an angle of 18.

Belemnites semicanaliculatus *Blainville, Belemn.* 67. t. 1. f. 13. 1827; *Desh. Enc. Méth.* ii. 126. n. 6.; *D'Orb. Paléont. Franç.*

Terr. Cret. i. 59. n. 9. t. 5. f. 10. 15., *Paléont. univ.* t. 76. f. 10. 15. t. 74. f. 7. 9., *Terr. Cret. Sup.* t. 9. f. 7. 9., *Moll. Viv. et Fos.* i. 553. n. 54.; *Duval, Belemn.* 74. t. 6. f. 5. 12.

Hab. (Etage aptice.)

45. BELEMNITES MINARET.

Shell elongate, rather acuminate, anteriorly rounded, beneath one-grooved, posteriorly depressed, sharply conical; alveolus at an angle of 18.

Belemnites rimosus *Raspail, Ann. Sc. d'Obs.* i. 319. t. 8. f. 68. 1829.
Belemnites depressus *Rasp.* l. c. 319. t. 8. f. 69. 1829.
Belemnites incurvatus *Rasp.* l. c. 319. t. 8. f. 71.
Belemnites marginatus *Rasp.* l. c. 319. t. 8. f. 70. 73, 74.
Belemnites attenuatus *Rasp.* l. c. 319. t. 8. f. 72.
Belemnites gibbosus *Rasp.* l. c. 320. t. 8. f. 76.
Belemnites asulus *Rasp.* l. c. 308. t. 6. f. 19.?
Belemnites rugosus *Rasp.* l. c. 322. t. 8. f. 89.
Belemnites minaret *Raspail*, l. c. 323. t. 8. f. 94. 1829; *D'Orb. Paléont. univ.* t. 75. f. 1. 8., *Terr. Cretac. Supp.* t. 10. f. 1. 8., *Moll. Viv. et Fos.* i. 551. n. 52.
Belemnites platyurus *Duval, Belemn.* 73. t. 11. f. 1. 3. 1841.

Hab. Greensand (Etage Néocomien).

Fossils in Gault.

46. BELEMNITES MINIMUS.

Shell elongate, club-shaped (young), posteriorly obtuse (adult), attenuated, acute, anteriorly narrowed, truncate, beneath one-grooved, laterally and longitudinally two-grooved.

Belemnites minimus *Lister, Hist. An. Aug.* 228. f. 32. 1678; *Miller, Trans. Geol. Soc.* t. 9. f. 6. 1823; *Blainv. Belemn.* 75. t; 4. f. i. c. and *Supp.* 118. (part); *Sow. Min. Conchol.* t. 589. f. 1.; *Keferst. Dict. Nat.* 427. n. 63.; *Bronn, Lethæa Geog.* t. 33. f. 13.?; *Michelin, Mém. Soc. Géol.* ii. 100.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 57. n. 8. t. 5. f. 3. 9., *Paléont. univ.* t. 76. f. 3. 9., *Moll. Viv. et Fos.* i. 554. n. 55. t 37. f. 21. 23.; *Geinitz. Charak.* 68. t. 17. f. 32, 33, 34.?; *Roemer, Kreideg.* 84. n. 3.?; *Morris, Brit. Fos.* 177.
Belemnites Listeri *Mantell, Geol. of Sussex*, 88. t. 19. f. 17, 18. 23. 1822; *Phillips, Geol. Yorksh* t. 1. f. 18.
Belemnites attenuatus *Sow. Min. Conch.* t. 589. f. 2. 1828; *Keferst. Dict. Nat.* 424. n. 15.; *Morris, Brit. Fos.* 177.
Belemnites jaculum *Phillips, Geol. Yorksh.* t. 3. f. 1.? 1829; *Morris, Brit. Fos.* 177.

Hab. Gault. England, &c.

Fossil in Juronien.

47. Belemnites ultimus.

Shell elongate, cylindrical, smooth, anteriorly roundedly compressed, beneath one-grooved; groove disappearing gradually; posteriorly acuminately pointed; alveolus at an angle of 20.

Belemnites ultimus *D'Orb. Paléont. univ.* t. 75. f. 9—13. 1846; *Terr. Cret. Supp.* t. 10. f. 9. 13., *Moll. Viv. et Fos.* i. 556. n. 56.

Hab. (Etage Juronien.)

3* *Dorsal Groove distinct.*—Nostocœli *D'Orb. Bronn*, l. c. 150. Gastrosiphites *Duval*, l. c.

† *The Style compressed, often much enlarged, with a distinct deep dorsal Groove, and distinct lateral Grooves.*—Fossil. Néocomien. Dilatati *D'Orb.* l. c. 481.; *Bronn*, 150.

48. Belemnites dilatatus.

Shell oblong, very much compressed, rather lanceolate, somewhat convex on the sides, longitudinally one-grooved, posteriorly obtuse, anteriorly grooved; alveolus at an angle of 20 .

Belemnites dilatatus *Blainv. Belemn.* 29. t. 3. f. 13. b. d. t. 5. f. 18. 1827; *Catullo, Ann. di Hor. di Bologna*, v. 310.; *Desh. Enc Méth.* 132. n. 24.; *Keferst. Dict. Nat.* 425. n. 36.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 39. n. 1. t. 2. f. 20, 21. t. 3. f. 4, 5., *Paléont. univ.* t. 65. f. 7—15. t. 66. f. 20, 21. t. 69. f. 4, 5., *Terr. Cret. Supp.* t. 3. f. 7—15., *Moll. Viv. et Fos.* i. 550. n. 51.; *Duval, Belemn.* 54. t. 4.; *Matheson, Catal.* 258. n. 283.

Belemnites linearis *Raspail, Hist. Nat. Belemn.* 36. n. 8 t. 6. f. 11.
Belemnites elegans *Rasp.* l. c. 36. n. 9. t. 6. f. 10.
Belemnites anomalus *Rasp.* l. c. 36. n. 10.
Belemnites variegatus *Rasp.* l. c. 41. n. 1. t. 7. f. 55.
Belemnites fumosus *Rasp.* l. c. 41. t. 7. f. 58.
Belemnites apiculatus *Rasp.* l. c. 42 t. 7. f. 56.
Belemnites sinuatus *Rasp.* l. c. 42. t. 7. f. 59.
Belemnites spathulus *Rasp.* l. c. 42. t. 7. f. 61.
Belemnites ellipsoïdes *Rasp.* l. c. 43. t. 7. f. 48.
Belemnites complanatus *Rasp.* l. c 43. t. 7. f. 63, 64.
Belemnites Delphinus *Rasp.* l. c. 44 t. 7. f. 47.
Belemnites bifurcatus *Rasp.* l. c. 44. t. 7. f. 67.
Belemnites augustus *Rasp.* l. c. 44. t. 7. f. 66.
Belemnites amorphus *Rasp.* l. c. 44. t. 7. f. 49.
Belemnites triqueter *Rasp.* l. c. 44. t. 7. f. 46.
Belemnites pseudo-formosus *Rasp.* l. c. 45. t. 8. f. 83.
Belemnites emarginatus *Rasp.* l. c. 45. t. 7. f. 50, 51. 60.

Belemnites difformis *Rasp.* l. c. 45. t. 7. f. 54.
Belemnites mitra *Rasp.* l. c. 45. t. 7. f. 53.
Belemnites mitræformis *Rasp.* l. c. 46. t. 7. f. 52.

Hab. (Etage Néocomien.)
a, *b*, *c*, *d*. Fossil style. Castellane. From Mr. Crantz's Collection.

49. Belemnites Emerici.

Shell oblong, very much compressed, anteriorly dilated, compressed on the sides, swollen, dilated in the middle, depressed in the sides, posteriorly obliquely acuminate, above grooved; alveolus at an angle of 18°.

Belemnites Emerici *Raspail, Ann. Sc. d'Obs.* i. 302. n. 1. t. 6. f. 1. 1829; *D'Orb. Paléont. Franç. Terr. Cret.* i. 617., *Paléont. univ.* t. 66. f. 22, 23. t. 69. f. 1—3. t. 73. f. 1—7., *Terr. Cret. Supp.* t. 8. f. 1—7., *Moll. Viv. et Fos.* i. 548. n. 50.; *Duval, Belemn.* 58. t. 5. f. 1—7.
Belemnites pileus *Raspail*, l. c. 304. n. 2. t. 6. f. 2. 5. 1829.
Belemnites affinis *Raspail*, l. c. 304. n. 3. t. 6. f. 3, 4. 1829.
Belemnites dilatatus *D'Orb. Paléont. Franç. Terr. Cret.* i. 2. f. 22. 23. t. 3. f. 1—3. (pars) 1839.

Hab. (Etage Néocomien.)

50. Belemnites latus.

Shell elongate, lanceolate, oblique, thick, compressed, posteriorly obtusely mucronate, beneath longitudinally broadly grooved: apex excentric; alveolus with an angle of 20°.

Belemnites latus *Blainv. Mém. sur les Belemn. Supp.* 121. t. 5. f. 10. (adult) 1828; *D'Orb. Paléont. Franç. Terr. Cret.* i. 48. n. n. 4. t. 4—8. (exclus. f. 1—5.), *Paléont. univ.* t. 67. f. 1—9. t. 68. f. 4—8., *Terr. Cret. Supp.* t. 4. f. 1—9., *Moll. Viv. et Fos.* i. 538., *Belemn.* n. 41.; *Duval, Belemn.* 61. t. 6. (exclus. f. 1.); *Matheson, Cat.* 258. n. 284.
Belemnites obesus *Raspail, Ann. Sc. d'Obs.* i. 307. t. 6. f. 13. 1829.
Belemnites Honoratii *Raspail*, l. c. 316. t. 8. f. 88. 1829.
Belemnites convexus *Raspail*, l. c. 42. t. 7. f. 17. 1829.
Belemnites persona tonsoria *Raspail*, l. c. 46.

Hab. (Etage Néocomien.)

51. Belemnites binervius.

Shell oblong, compressed, nearly equal, anteriorly narrow, above grooved, flattened at the sides, two-striated, posteriorly obtusely pointed; alveolus with angle at 21—30°.

Belemnites binervius *Raspail*, *Ann. Sc. d'Observ.* i. 34. n. 4. t. 6. f. 6. 1829; *D'Orb. Résumé sur les Céphal. Terr. Cret.* i. 617., *Paléont. univ.* t. 65. f. 1—6. t. 66. f. 9—19., *Terr. Cretac. Supp.* t. 3. f. 1—6., *Moll. Viv. et Fos.* i. 536. n. 40.

Belemnites pisciformis *Raspail*, *Ann. Sc. d'Obs.* i. 43. t. 7. f. 65. 1829.

Belemnites acinaciformis *Raspail*, l. c. 35. n. 5. t. 6. f. 8. 1829.

Belemnites truncatus *Raspail*, l. c. 35. n. 6. t. 6. f. 9. 1829.

Belemnites distans *Raspail*, l. c. 36. n. 7. t. 6. f. 7. 1829.

Belemnites dilatatus *D'Orb. Terr. Cretac.* 39. t. 2. f. 9—19. 1839.

Belemnites hybridus *Duval*, *Belemn.* 51. t. 3. 1841.

Hab. (Etage Néocomien.)

52. Belemnites Orbignyanus.

Shell elongate, somewhat cylindrical, smooth, above somewhat compressed, beneath grooved; groove disappearing in the middle, posteriorly depressly mucronate; alveolus with an angle of 18°.

Belemnites Orbignyanus *Duval*, *Belemn.* 65. t. 8. f. 4—9. 1841; *D'Orb. Paléont. univ.* t. 67. f. 10—16., *Terr. Cret. Supp.* t. 4. f. 10—16., *Moll. Viv. et Fos.* i. 539., *Belemn.* n. 42.

Hab. (Etage Néocomien.)

53. Belemnites conicus.

Shell short, conical, rather cylindrical, thick, anteriorly dilated, posteriorly acuminated, acute, beneath longitudinally broadly grooved; groove keeled on the sides.

Belemnites conicus *Blainv. Belemn.* 118. t. 5. f. 4. young, 1827; *D'Orb. Paléont. univ.* t. 68. f. 13. t. 71. f. 9—16., *Terr. Cret. Supp.* t. 6. f. 9—16., *Moll. Viv. et Fos.* i. 545. n. 48.

Belemnites exstinctorius *Raspail*, *Ann. Sc. d'Obs.* i. 308. t. 6. f. 20. (adult) 1829.

Belemnites latus *D'Orb. Terr. Cret.* t. 4. f. 1—3. (exclus. f. 4—8.) 1840; *Duval*, *Belemn.* t. 6. f. 1—4. (exclus. f. 2, 3. 5. 8.)

Fos. Greensand (Etage Néocomien).

54. Belemnites Grasianus.

Shell oblong, compressed, anteriorly somewhat cylindrical, posteriorly acuminate, acute, above longitudinally broadly grooved; groove externally keeled; alveolus 20°.

Belemnites Grasianus *Duval*, *Belemn.* 63. t. 7. f. 1—4. 1841; *D'Orb. Paléont. univ.* t. 73. f. 8—13. t. 74. f. 1—6., *Terr. Cret.*

Supp. t. 8. f. 8—13. t. 9. f. 1—6., *Moll. Vic. et Fos.* i. 552. n. 53.

Fos. Greensand (Etage Néocomien).

55. Belemnites Baudouinii.

Shell elongate, conical, smooth, anteriorly dilated, posteriorly acuminate, acute, beneath grooved.

Belemnites Baudouinii *D'Orb. Paléont. Franç. Terr. Cret.* i. 54. n. 7. t. 5. f. 1, 2., *Paléont. univ.* t. 76. f. 1, 2., *Moll. Vic. et Fos.* i. 544., *Belemn.* n. 46.

Fos. Greensand (Etage Néocomien).

56. Belemnites polygonalis.

Shell elongate, lanceolate, compressed, anteriorly four-sided and lobed, above one-grooved, posteriorly square, on the sides flat or excavated, above and beneath posteriorly flattened or excavated; apex acuminate, pointed; alveolus at an angle of 20—22°.

Belemnites polygonalis *Blainv. Belemn. Supp.* 121. n. 156. t. 5. f. 10. 1827; *Raspail, Ann. Sc. d'Obs.* i. 330. 1829; *D'Orb. Paléont. univ.* t. 66. f. 1—8. t. 72., *Terr. Cret. Supp.* t. 7., *Moll. Vic. et Fos.* i. 546. n. 49.

Group Tetragonolobi *Raspail*, l. c. iii. 87. t. 4. f. 1—7. 1830.

Group Tetragoni *Raspail*, l. c. iii. 87. t. 4. f. 8. 13. 1830.

Group Heteromorphi *Raspail*, l. c. iii. 88. t. 4. f. 14—19.

Belemnites dilatatus *D'Orb. Terr. Cret.* t. 2. f. 1—8. (exclus. f. 9—23.

Belemnites isosceles *Duval, Belemn.* 46. t. 1. f. 9—16. 1841.

Belemnites urnula *Duval*, l. c. 47. t. 2. f. 1—7. 1841.

Belemnites trabiformis *Duval*, l. c. 48. t. 2. f. 8—14. 1841.

Belemnites sicyoides *Duval*, l. c. 49. t. 2. f. 15—20. 1841.

Fos. Greensand (Etage Néocomien).

Doubtful Species.

57. Belemnites lamella.

Belemnites lamella *Faure Biguet, Cons. sur les Belemn.* 39. n. 1. f. 3, 4. 1819; *D'Orb. Paléont. univ.* t. 77. f. 12—17., *Paléont. étrang.* t. 37. f. 12—17., *Moll. Viv. et Fos.* i. 557. n. 57.

Fos. Valdrome en Diois.

58. Belemnites vagina.

Belemnites vagina *Faure Biguet, Belemn.* 40. n. 2. 1819; *D'Orb. Moll. Viv. et Fos.* i. 557. n. 58.

Fos. Valdrome en Diois.

59. Belemnites capulus.

Belemnites capulus *Faure Biguet, Belemn.* 41. n. 3. 1819; *D'Orb. Moll. Viv. et Fos.* i. 558. n. 59.

Fos. Valdrome en Diois.

60. Belemnites colutea.

Belemnites colutea *Faure Biguet, Belemn.* 42. n. 4. 1819; *D'Orb. Moll. Viv. et Fos.* i. 558. n. 60.

Fos. Osson.

61. Belemnites coronilla.

Belemnites coronilla *Faure Biguet, Belemn.* 42. n. 5. 1819; *D'Orb. Moll. Viv. et Fos.* i. 558. n. 61.

Fos. Commane.

62. Belemnites siliqua.

Belemnites siliqua *Faure Biguet, Belemn.* 43. n. 6. 1819; *D'Orb. Moll. Viv. et Fos.* i. 559. n. 62.

Fos. Commane.

63. Belemnites legumen.

Belemnites legumen *Faure Biguet, Belemn.* 44. n. 7. 1819; *D'Orb. Moll. Viv. et Fos.* i. 559. n. 63.

Fos. Commane.

64. Belemnites cassia.

Belemnites cassia *Faure Biguet, Belemn.* 44. n. 8. 1819; *D'Orb. Moll. Viv. et Fos.* i. 559. n. 64.

Fos. —— ?

65. Belemnites catalpa.

Belemnites catalpa *Faure Biguet, Belemn.* 45. n. 9. f. 5. 1819; *D'Orb. Paléont. univ.* t. 77. f. 18., *Paléont. étrang.* t. 37. f. 18., *Moll. Viv. et Fos.* i. 560. n. 65.

Fos. Monte Cindre.

66. Belemnites attenuatus.

Belemnites attenuatus *Faure Biguet, Belemn.* 47. n. 10. 1819 (not attenuatus *Sow.* 1828.); *D'Orb. Moll. Viv. et Fos.* i. 561. n. 66.

Fos. Drôme.

67. Belemnites clava.

Belemnites clava *Faure Biguet, Belemn.* 48. n. 11. 1819; *D'Orb. Moll. Viv. et Fos.* i. 561. n. 67.

Fos. Commane.

68. Belemnites index.

Belemnites index *Faure Biguet, Belemn.* 50. n. 12. 1819; *D'Orb. Moll. Viv. et Fos.* i. 562. n. 68.

Fos. Valdrome.

69. Belemnites dactylus.

Belemnites dactylus *Faure Biguet, Belemn.* 51. n. 13. t. . f. 6. 1819; *D'Orb. Paléont. univ.* t. 77. f. 19., *Paléont. étrang.* t. 37. f. 19., *Moll. Viv. et Fos.* i. 563. n. 69.

Fos. Commane.

70. Belemnites digitus.

Belemnites digitus *Faure Biguet, Belemn.* 51. n. 14. 1819; *D'Orb. Paléont. univ.* t. 77. f. 20—22., *Paléont. étrang.* t. 37. f. 20—22., *Moll. Viv. et Fos.* i. 563. n. 70.

Fos. Drôme.

71. Belemnites digitulus.

Belemnites digitulus *Faure Biguet, Belemn.* 53. n. 15. 1819; *D'Orb. Moll. Viv. et Fos.* i. 564. n. 71.

Fos. Commane.

72. Belemnites striatus.

Belemnites striatus *Faure Biguet, Belemn.* 53. n. 16. 1819; *D'Orb. Moll. Viv. et Fos.* i. 564. n. 72.

Fos. Commane.

73. Belemnites dens.

Belemnites dens *Faure Biguet, Belemn.* 55. n. 17. 1819; *D'Orb. Moll. Viv. et Fos.* i. 564. n. 73.

Fos. Couzon.

74. Belemnites fulmen.

Belemnites fulmen *Faure Biguet, Belemn* 55. n. 18. 1819; *D'Orb. Moll. Viv. et Fos.* i. 565. n. 74.

Fos. Commane.

75. Belemnites tonitruum.

Belemnites tonitruum *Faure Biguet, Belemn.* 56. n. 19. 1819; *D'Orb. Moll. Viv. et Fos.* i. 565. n. 75.

Fos. Lyon.

76. Belemnites jaculum.

Belemnites jaculum *Faure Biguet, Belemn.* 56. n. 20. 1810; *D'Orb. Moll. Viv. et Fos.* i. 565. n. 76.

Fos. Mont Cindre.

77. Belemnites sulculatus.

Belemnites sulculatus *Risso, Hist. Nat. Eur. Mer.* iv., *Moll.* 14. n. 31. 1826; *D'Orb. Moll. Viv. et Fos.* i. 566. n. 77.

Fos. Calcareous Marl, Alps.

78. Belemnites dactylus.

Belemnites dactylus *Risso, Hist. Nat Eur. Mer.* iv., *Moll.* 14. n. 32. 1826; *D'Orb. Moll. Viv. et Fos.* i. 566. n. 78.

Fos. Chloritic Marl.

79. Belemnites tubulosus.

Belemnites tubulosus *Risso, Hist. Nat. Eur. Merid.* iv., *Moll.* 14. n. 33. 1826; *D'Orb. Moll. Viv. et Fos.* i. 566. n. 79.

Fos. Choritic Grit, Rocca tagliada.

80. Belemnites meta.

Belemnites meta *Blainv. Belemn.* 87. t. 3. f. 3. 1827; *D'Orb. Paléont. univ.* t. 77. f. 8—9., *Paléont. étrang.* t. 37. f. 8—9., *Moll. Viv. et Fos.* i. 566. n. 80.

Fos. ——— ?

81. Belemnites anomalus.

Belemnites anomalus *Phillips, Geol. Yorksh.* 166. 1829; *D'Orb. Moll. Viv. et Fos.* i. 566. n. 81.

Fos. Kelloway Rock, Yorkshire.

82. Belemnites tornatilis.

Belemnites tornatilis *Phillips, Geol. Yorksh.* 166. 1829; *D'Orb. Moll. Viv. et Fos.* i. 566. n. 82.

Fos. Kelloway Rock, Yorkshire.

83. Belemnites cylindriformis.

Belemnites cylindriformis *Parkinson, Org. Rem.* iii. 127. t. 8. f. 10—14.; *D'Orb. Paléont. univ.* t. 77. f. 1., *Moll. Viv. et Fos.* i. 567. n. 83.

Fos. ——— ?

84. Belemnites subungulatus.

Belemnites subungulatus *Hartmann, Zieten, Wurt.* 33. t. 25. f. 2. 1830; *D'Orb. Paléont. univ.* t. 77. f. 2. 6., *Paléont. étrang.* t. 37. f. 2—6., *Moll. Viv. et Fos.* i. 567. n. 84.

Fos. Lias, Hartz.

85. Belemnites acicula.

Belemnites acicula *Munster, Bemerkungen zur Nahern Ken. des Belemn.* 8. t. 1. f. 14. 1830; *Keferst. Dict. Nat.* 424. n. 3.; *D'Orb. Paléont. univ.* t. 77. f. 7., *Paléont. étrang.* t. 37. f. 7., *Moll. Viv. et Fos.* i. 567. n. 85.

Fos. Perhaps young, *B. Puzosianus.*

86. Belemnites Prevostii.

Shell elongately conical, narrow, somewhat club-shaped, smooth; apex acute, many-striated; striæ very fine, deep.

Belemnites Prevostii *Desh. Encyc. Méth. Vers.* ii. 130. n. 16. 1830: *D'Orb. Moll. Viv. et Fos.* i. 567. n. 86.

Fos. ——— ?

Apocryphal Species.

87. Belemnites obtusus.

Belemnites obtusus *Blainv. Belemn.* 101. n. 42. t. 3. f. 14. 1827; *D'Orb. Paléont. univ.* t. 77. f. 10, 11., *Paléont. étrang.* t. 37. f. 10, 11. (bad figure), *Moll. Viv. et Fos.* i. 568.

Established by Blainville, from a copy of a bad figure from Knorr, Supp. t. 14. f. 2.

88. Belemnites biforatus.

Knorr, Monuments, ii. sect. 2. 242. t. 1*. f. 7. 1.

Pactites biforatus *Montf. Conch. Syst.* 318. gen. 80. 1808.
Belemnites biforatus *Schloth. Min. Tasch.* viii. 76. 1813; *D'Orb. Moll. Viv. et Fos* i. 568.

Established by Montfort from a bad figure of Knorr's.

89. Belemnites ungulatus.

Knorr, Monum. iii. iv. sup. 146. t. 4. f. 8, 9.
Belemnites ungulatus *Schloth. Petref.* 50. n. 9. 1820; *D'Orb. Moll. Viv. et Fos.* i. 568.
Thalamus polymitus *Montf. Conch. Syst.* 323. 1808.

Established by Schlotheim from a bad figure of Knorr's.

90. Belemnites alveolatus.

Callirhoe alveolatus *Montf. Conch. Syst.* 363. 1808.
Belemnites alveolatus *D'Orb. Moll. et Viv.* i. 569.

Established by Montfort upon an alveolus of a Belemnite.

91. Belemnites glaber.

Knorr, Monum. ii. sect. 2. 241. t. 1*. f. 4.
Cetocis glaber *Montf. Conch. Syst.* 371. 1808.
Belemnites cretaceus glaber *Schloth. Min. Tasch.* vii. 69. t. 35. 1813.
Belemnites penicellatus *Schloth. Petref.* 50. n. 10. 1820.
Belemnites glaber *D'Orb. Moll. Viv. et Fos.* i. 569. 1845.

Established upon a rolled fragment; indeterminable.

92. Belemnites polyforatus.

Knorr, Monuments, ii. sect. 2. 241. t. 1*. f. 1—3.
Acamas polyforatus *Montf. Conch. Syst.* 374. 1808.
Belemnites polyforatus *Schloth. Min. Tasch.* vii. 69. 1813, *Petref.* 50. n. 11.; *Blainv. Belemn.* 103. n. 45.; *D'Orb. Moll. Viv. et Fos.* i. 569.
Belemnites ungulatus *Blainv. Belemn.* 78. n. 18. 1827 (not *Schloth.* 1813).

Established upon a bad figure of Knorr's.

93. Belemnites pyrgopolon Mosæ.

Pyrgopolon Mosæ *Montf. Conch. Syst.* 394. gen. 99. 1808.
Belemnites pyrgopolon Mosæ *Schloth. Min. Tasch.* vii. 110. 18. 13. *D'Orb. Moll. Viv. et Fos.* i. 569.
Belemnites canaliculatus *Schloth. Petref.* 49. n. 7. 1820.

Established by Montfort upon a fragment of a rolled Belemnite.

94. Belemnites reticulatus.

Knorr, Monum. ii. sect. 2. 133. t. 6, 7. f. 4.
Chrysaor hercininus *Montf. Conch. Syst.* 378. 1808.
Belemnites reticulatus *Schloth. Min. Tasch.* vii. 110. 1813; *D'Orb. Moll. Viv et Fos.* i. 569.

Established by Montfort upon a bad figure of Knorr's.

95. Belemnites fistulosus.

Belemnites fistulosa *Blainv. Belemn.* 100. n. 41. 1827; *D'Orb. Moll. Viv. et Fos.* i. 569.

Established by Blainville, after a figure representing a longitudinal section, taken from Knorr, ii. t. 1. f. 5

APPENDIX.

Beak of Cephalopoda.

1. CONCHORHYNCHUS.

Animal unknown. — *Beak* testaceous. Mandibles triangular, broad, upper ? angular in front, convex, angular externally, and marked with radiating ribs, three medial and three lateral; the inner part concave; dental edge with regular prominences and depressions: the lower ? with radiating ribs, with a hood in front; the anterior end blunt, and the dental part with strong facets.

Glossopetres sp. and Histerolites sp. *Knorr.*
Rhyncholites *Munster*, *Beitr.* 1829.
Conchorhynchus *Blainville*, *Belemn.* 115. 1827; *D'Orb. Moll. Viv. et Fos.* i. 587.
Lepadites *Schlotheim*, *Petref.* 1820.
Sepia rostrum *Blumenbach*, *Arch.* i. 21.; *Brongn. Ann. Sic. Nat.* ii. 485.; *Gaillardot*, *Ann. Sic. Nat.* ii. 1824. 485.

Fos. Muschelkalk.

1. Conchorhynchus avirostres.

Beak triangular.

Knorr, ii. t. 11. i. a. f. 9, 10. 1768.
Gmelin, *N. G. Mineral*, iii. t. 6. f. 79, 80.
Schroet. Lyt. Lexic. viii. 207.
Sepia rostrum *Blumenbach*, *Arch.* i. 21. t. 2. f. 5. a. (b. c.?)
Bec de Sèche *Gaill. Ann. Sci. Nat.* 1824. ii. t. 22. f. 12.
Lepadites avirostres *Schlotheim*, *Petref.* 169. t. 29. f. 10. 1820.
Conchorhynchus ornatus *Blainv. Belemn.* 115. t. 4. f. 12. 1827.
Rhyncholites Gaillardoti *Zieten*, *Wurtz.* 49. t. 37. f. 2. 1830; *Hartm. Wurtz.* 31. t. 37. f. 2. 1830; *D'Orb. Ann. Sci. Nat.* v. 219.
Sepia Gaillardoti *Keferst. Dict. Nat.* 53. 1834.

Conchorhynchus avirostris *Bronn, Lethæa, Géog.* 1827; *Munster, Beitr.* 1839, i. 69. t. 5. f. 2, 3.; *D'Orb. Paléont. univ.* t. 78. f. 1. 6., *Moll. Viv. et Fos.* 590. t. 38. f. 1. 6.

a. Muschelkalk, upper layer. Bayreuth. Presented by J. E. Gray, Esq.

2. Conchorhynchus duplicatus.

Rhyncolitus duplicatus *Munster, Beitr.* i. 70. t. 5. f. 5. 1829.
Conchorhynchus duplicatus *D'Orb. Paléont. univ.* t. 73. f. 7. 10., *Moll. Viv. et Fos.* t. 38. f. 7—10. from Munster.

Fos. Muschelkalk, Bavaria.

3. Conchorhynchus Cassianus.

Conchorhynchus Cassianus *Meyer-Klepstein, Beitr. z. Geog.* 145. t. 9. f. 7. 1843; *D'Orb. Paléont. univ.* t. 78. f. 7—10., *Moll. Viv. et Fos.* i. 591. t. 38. f. 11, 12. from Klepstein.
C. Cassianicus *Bronn, Gesch. d. Nat.* iii. 323.

Fos. Muschelkalk, saliferous bed, Austrian Alps.

2. RHYNCHOLITES.

Animal unknown. — *Beak* testaceous, depressed, triangular or elongate, broader than thick; above angular, smooth, convex; triangular, acuminated in front, broad behind, and ending in two winglike expansions.

Rhyncolithes sp. *Faure Biguet*, 1819; *Rousseau, Voy. Demid.; D'Orb. Tab. Céphal.* 72., *Ann. Sci. Nat.* v. 9. t. 6. f. 2. 1825.
Rhynchoteuthis *D'Orb. Moll. Viv. et Fos.* i. 593. 1847.

Fos. Of the Jurassic period.

* *Kelloway Rock.*

1. Rhyncholites honoratianus.

Rhynchoteuthis honoratianus *D'Orb. Paléont. univ.* t. 79. f. 1. 4. 1847., *Moll. Viv. et Fos.* i. 594. t. 39. f. 1. 4., *Ter. Juras. Supp.* t. 4. f. 1—4.

Fos. Dignes, Lower Alps.

2. Rhyncholites antiquatus.

Rhyncholites antiquatus *Rousseau, Voy. Demid.* t. 1. f. 1.
Rhynchoteuthis antiquatus *D'Orb. Moll. Viv. et Fos.* i. 595. t. 39. f. 5. 8.

Fos. Crimea.

** *Oxford Clay.*

3. Rhyncholites Emerici.

Anterior part smooth, keeled above, much pointed in front.

Rhyncholites Emerici *D'Orb. Tab. Céphal.* 72. 1825.
Rhyncholite aigu *Blainv. Belemn.* t. 5. f. 22. 1827.
Rhynchoteuthis Emerici *D'Orb. Paléont. univ.* t. 79. f. 9. 12., *Moll. Viv. et Fos.* i. 595. t. 39. f. 9. 12.

Fos. Dignes.

4. Rhyncholites Larus.

Blunt in front, with a prominence beneath.

Rhyncholites Larus *Faure Biguet*, 58. t. 1. f. 2. t. 6. f. 2. 1819; *D'Orb. Ann. Sci. Nat.* 1825. v. 8. t. 6. f. 2.
Rhynchoteuthis Larus *D'Orb. Paléont. univ.* i. t. 79. f. 13. 16. 1847; *Moll. Viv. et Fos.* i. 396. t. 39. f. 13. 16.

Fos. Rians.

5. Rhyncholites Coquandianus.

Front part smooth, pointed; hinder part concave, with a central groove; wing short.

Rhynchoteuthis Coquandianus *D'Orb. Paléont univ.* i. 579. f. 17. 20., *Moll. Viv. et Fos.* i. 597. t. 39. f. 17. 20.
R. Larus, lower mandibles, *D'Orb.* l. c.

Fos. Rians.

3 * *Néocomien.*

6. Rhyncholites alatus.

Beak of *Belemnites Emerici?*

Rhynchoteuthis alatus *D'Orb. Paléont. univ.* i. t. 80. f. 1. 4. 1847, *Moll. Viv. et Fos.* i. 598.

Fos. Cheiron.

4 * *Aptien.*

7. Rhyncholites asterianus.

Rhynchoteuthis asterianus *D'Orb. Paléont. univ.* i. t. 80. f. 57. 1847, *Moll. Viv. et Fos.* i. 598.

Fos. Blieux.

*5 * Senoien.*

8. RHYNCHOLITES DUTEMPLEI.

Like *R. Emerici*, but shorter.

Rhynchoteuthis Dutemplei *D'Orb. Moll. Viv. et Fos.* i. 599.

Fos. Chevot.

Doubtful Species.

9. RHYNCHOLITES TUBERCULATUS.

Rhyncholites tuberculatus *Faure Biguet*, 59. 1809.
Rhynchoteuthis tuberculatus *D'Orb. Moll. Viv. et Fos.* i. 600

Fos. Valdrome.

10. RHYNCHOLITES UNIDENTATUS.

Rhyncholites unidentatus *Faure Biguet*, 58. 1819.
Rhynchoteuthis unidentatus *D'Orb. Paléont. univ.* 1847, *Moll. Viv. et Fos.* 599.

Fos. Valdrome.

11. RHYNCHOLITES HASTA.

Rhyncholites hasta *Faure Biguet*, 59. 1819.
Rhynchoteuthis hasta *D'Orb. Moll. Viv. et Fos.* 599.

Fos. Luc.

Additions and Corrections.

Mr. Frederick Edwards having re-examined the *Beloptera anomala* (p. 118.) of Mr. James Sowerby, and formed a genus for it, the character is here given, and they should be added at p. 118.

4. BELEMNOPSIS.

Animal ——— ? — *Shell* internal, oblong, semi-conical; apex inflexed towards the ventral aspect, and elongated into an umbo; the anterior part with a deep semi-conical cavity, ending in a pore at the ventral side of the umbo internally; cavity lined with two concentric calcareous layers, continued over the ventral surface, and enveloping a series of transverse septa, perforated by a ventral siphon.

Belemnopsis *F. Edwards, Cephalopes of London Clay*, 38. ined.
Beloptera sp. *Sow. Min. Conch.*

This genus is, perhaps, the type of a new family.

1. Belemnopsis anomala.

Beloptera anomala, p. 118.
Belemnopsis plicata *F. Edwards, Ceph. London Clay*, 40. t. 2. f. 3. ined.

Fos. London Clay. Cabinet of F. Edwards, Esq.

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THE END.

LONDON:
SPOTTISWOODES and SHAW,
New-street-Square.

LIST

OF THE

MOLLUSCA

IN

THE COLLECTION

OF THE

BRITISH MUSEUM.

PART II.

OLIVIDÆ.

LONDON:

PRINTED BY ORDER OF THE TRUSTEES.

1865.

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PREFACE.

This Catalogue contains a List of all the species of Mollusca belonging to the family *Olividæ*, with the characters of the genera and sections into which the species are divided, indicating at the same time, by a *B.M.* in the margin, those contained in the British Museum.

To show the geographical distribution of the species, great attention has been paid to the evidence of the country inhabited by them.

JOHN EDWARD GRAY.

British Museum,
Dec. 1864.

LIST

OF

MOLLUSCA.

Family OLIVIDÆ.

Siphon of mantle recurved. Head small. Foot with a cross groove on each side, in front very large, often enclosing a part of the shell and producing a polished coat on it. Mantle enclosed. Shell ovate cylindrical. Mouth linear, ovate; canal reduced to a notch. Operculum horny, small, often wanting.

Tribe I. OLIVINA.

Shell subcylindrical, smooth, polished; suture with a deep channel; pillar plaited in front. Mantle with an elongated posterior process enclosed in the groove of the spire. Lateral teeth of the tongue broad ovate. Operculum with subapical nucleus or wanting.

Linnæus divided the shells usually called *Olives* by the dealers into three species, viz. *Voluta porphyria*, *V. oliva*, and *V. ispidula*.

Gmelin added a few; and Lamarck, who published a monograph of the genus in the 'Annales du Muséum,' extended the number to sixty-two, which Dillwyn reduced to eighteen.

Duclos, who published the plates of a monograph of this genus in 1835, figures eighty-four recent species; and he considers twenty-two of the species which Lamarck described as only varieties of other species.

In 1850 Mr. L. Reeve, in his 'Conchologia Iconica,' published the figures of 100 species, but without any attention to their affinity to each other, and with scarcely sufficient care to the more important part of the shell on which the separation of the species depends. They are therefore inferior to those of M. Duclos.

I believe that it is the uncertainty with regard to the number of the species that has rendered these shells, which are certainly among the most beautiful in form, colour, and marking that we possess, so little attended to by the general collector. This is the more remarkable, as the shells are very extensively distributed over the globe and are easily collected, and therefore procurable by the conchologist at a moderate rate. Though it is very difficult to define the limits of many of the species on account of the great variation in the colour, and the extraordinary manner in which the marking gradually changes in its character, yet other species are easily distinguished.

All the species are easily separated into very distinct groups, defined by variations in the form and structure of the shell, which are evidently produced by important modifications in the structure of the animal. To point out these groups is the object of this List, for I believe that by dividing the species, or varieties which have been considered as species, into such groups, I shall do much to disentangle the subject, and at least confine the confusion to definite limits; for if the groups are properly defined, it is only the specimens belonging to one of these groups that can be varieties of each other.

M. Duclos, in his monograph, divides the species into four groups:—1. *Ancilloides* (twenty-nine species); 2. *Cylindroides* (fifty species); 3. *Glandiformes* (seventeen species); 4. *Volutelles* (seventeen species).

M. D'Orbigny, in his 'Voyage to South America,' formed M. Duclos's four sections into three genera, giving to the first section the name of *Olivina*, to the second and third sections that of *Oliva*, and to the fourth *Olivancillaria*, apparently founded on the form of the animal; but it is only necessary to compare his figures of the animals of the two species of the latter genus to show how little he attended to his own characters.

In the 'Zoology to Capt. Beechey's Voyage' I divided the genus into two, according to the structure of the animal, viz. *Oliva* and *Agaronia*, and observed that some *Olivæ* were furnished with an operculum not present in other species. More lately, in the text to Mrs. Gray's 'Figures of Molluscous Animals,' and in the 'Guide to the Collection of Mollusca in the Museum,' I have extended the number of genera to four; separating the operculated *Olivæ* under the name of *Olivella*, and giving to an

animal figured by D'Orbigny as *Oliva auricularia* the name of *Scaphura*.

These shells sometimes have an elevated shelly cross band. Lamarck had a specimen of *Oliva porphyria* (Hist. viii. 418) so marked. It is not uncommon in *O. guttata*, where it has been regarded as a specific character; but it is often found in other species.

A further study of the figures of the animals given by authors has induced me to revise this arrangement and propose the following

Synopsis of the Genera.

I. *Head exposed; tentacles elongate, subulate; eyes distinct, subbasal. Foot elongate, dilated, front lobes semicircular. Operculum none. Shell with the front belt narrow.*

* *Spire simple, with sutural groove open to the tip.*

Pillar lip simple, not covering the front belt; inner lip cross grooved. 1. Strephona.

Pillar lip simple, not covering the front belt; inner lip thickened the whole length, with two or three slight grooves in front. 2. Ispidula.

Pillar lip simple, not covering the front belt; inner lip with a series of transverse parallel grooves in front extending over the pillar. 3. Ramola.

Pillar lip expanded so far back as to cover the front belt, and with an oblique raised ridge in front; inner lip grooved. 4. Carmione.

** *Spire callous, obliterating the sutural grooves, except on the last or lowest whorl.*

Shell ovate or obconic; aperture wide; pillar lip expanded: pillar twisted and grooved in front; front belt broad. 5. Claneophila.

Shell subcylindrical; spire small; aperture linear; pillar lip simple, defined; inner lip grooved; front belt narrow. 6. Galeola.

II. *Head scarcely exposed; tentacles short; eyes none. Foot elongate, dilated in front, one-coloured. Shell with the sutural groove open.*

Shell subcylindrical or subovate; aperture oblong, thickened; front belt broad, double. 7. Anazola.

Shell subovate; aperture ovate; pillar slightly thickened; front belt single, moderate. 8. AGARONIA.

III. *Head hidden; tentacles none; eyes none. Foot short, very broad, rounded on the sides, one-coloured. Operculum distinct.*

Spire conical; sutural groove open to the apex; aperture of shell moderate; operculum distinct; foot very short, front lobes linear. 9. OLIVINA.

Spire conical; sutural groove open to the apex; aperture of shell wide; pillar lip thick, smooth, with two grooves in front; operculum none?; foot large, front lobes very large, rounded. 10. SCAPHULA.

Spire callous; sutural groove only open on the last whorls; aperture moderate; operculum distinct. 11. MICANA.

I. *Head exposed; tentacles elongate, subulate; eyes distinct, subbasal. Foot elongate, dilated, front lobes semicircular. Operculum none. Shell with the front belt narrow.*

* *Spire simple, with sutural groove open to the tip.*

Genus 1. STREPHONA.

Shell subcylindrical; spire conical or flattish, small; aperture linear; pillar lip simple, only expanded in front, and not covering the callus; front belt narrow; inner lip cross grooved. Foot elongate, longer than the shell, broad, rounded behind, dilated on the sides, which are bent up and cover the shell; the front lobes nearly semicircular, rather produced, and acute at the hinder outer angles. Head exposed; tentacles elongate; eyes one-third from the base. Operculum none.

Adanson, in his 'Hist. Nat. du Sénégal,' regards all the specimens of this genus as belonging to one species, observing: —"La couleur de cette coquille est peu constante. J'en ai de blanches, de jaunes, de jaunes livids, de jaunes verd, & même de verdâtres sans aucun mélange. J'en ai aussi qui, sur ces différens fonds, sont tachées, tigrées, marbrées ou couvertes de zigzags, qui s'étendent tantôt sur leur longueur, tantôt sur leur largeur. Ces taches, ces points, ces bandes, et ces lignes sont cendrés, noir ou bleuâtre dans les unes; brun, rougeâtres ou pourpres dans les autres: enfin leur mélange est si varié, que ce seroit perdre son tems que de faire l'énumération de toutes celles qui ont été décrites ou figurées par leurs auteurs. Je me suis contenté de citer une vingtaine des principales variétés auxquelles on peut rapporter toutes les autres, dont plus de deux cent

sont parvenues à ma connoissance. Leur intérieur est aussi blanc, jaune, violet, ou pourpre foncé." (p. 63.)

It would appear either that the animals vary as much in colour as the shells, or, if permanent, they present good characters for the separation of the species, according to the specimens of the animal figured by Messrs. Quoy and Gaimard in the 'Voyage of the Astrolabe,' t. 46, which are copied and improved (?) by M. Duclos. The animal of the black variety of *O. maura* is black, minutely brown-dotted, and with a regular pale edge to the foot. *S. erythrostoma* and *S. textilina* are pale brown, with large brown spots. *S. elegans* and *S. sanguinolenta* are yellow, minutely black-dotted. It is interesting to observe that the shells which are allied in colour and form have animals also similarly allied.

1. Strephona porphyria. B.M.

Reddish brown, spotted with angular reddish lines; spire and front of pillar violet, spire conical.

Voluta porphyria, *Linn. S. N.* ii. 87.
Dillw. R. S. 510.
Oliva porphyria, *Lamk. Monogr. Ann. du Mus.* and *Hist. des Moll.* no. 1; *E. M.* t. 361. f. 4.
Duclos, Oliv. t. 24. f. 15.
Reeve, C. I. t. 1. f. 2.
Strephona porphyria, *Gray, Proc. Zool. Soc.* 1858, 41.
Hab. Panama.

2. Strephona angulata. B.M.

Throat and pillar reddish.

Voluta incrassata, *Soland. MSS.*
Dillw. R. S. 516.
Oliva angulata, *Lamk.* no. 6; *E. M.* t. 363. f. 16.
Duclos, Oliv. t. 17. f. 9, 10.
Reeve, C. I. t. 1. f. 1.
Oliva azemula, *Duclos*, fide *Reeve* (see no. 7).
Strephona angulata, *Gray, Proc. Zool. Soc.* 1858, 41.
Hab. Gulf of Nicoya.

3. Strephona cruenta. B.M.

Throat orange.

Oliva guttata, *Lamk.* no. 14; *E. M.* t. 368. f. 2, *a*, *b*.
Voluta cruenta, *Solander, MSS.*
Dillw. R. S. 514.

Oliva maculata, *Duclos, Oliv.* t. 15. f. 1–6.
Reeve, C. I. t. 14. f. 30.
Voluta ispidula, *Martini*, ii. f. 491, 492.
Oliva mantichora, *Duclos, Oliv.* t. 15. f. 7, 8.
Strephona cruenta, *Gray, Guide B. M.* 24; *Proc. Zool. Soc.* 1858, 41.

Var. Subangular, with a raised rib behind.

Voluta annulata, *Gmelin, S. N.* 3441.
Dillw. R. S. 515.
Voluta balteata, *Soland. MSS.*
Oliva leucophæa, *Lamk.* no. 14; *E. M.* t. 363. f. 2.

Hab. Isle of France.

4. Strephona maura. B.M.

Black, yellow, or grey; throat and pillar lip white.

Oliva maura, *Lamk.* no. 7; *E. M.* t. 366. f. 1, 2, t. 365. f. 1, 3.
Duclos, Oliv. t. 23. f. 1–12.
Reeve, C. I. t. 7. f. 10.
Oliva sepulturalis, *Lamk.* no. 8; *E. M.* t. 365. f. 1.
Voluta oliva, vars. F, H, K, L, O, P, Q, S, *Dillw. R. S.* 512.
Cylindrus nigellus, *Meuschen.*
Oliva fulminans, *Lamk.* no. 9; *E. M.* t. 364. f. 4.
Oliva funebralis, *Lamk.* no. 26.
Martini, f. 480, 481.
Strephona maura, *Gray, Guide B. M.* 26; *Proc. Zool. Soc.* 1858, 42.

Hab. Indian Ocean.

Animal dark brown, minutely black-dotted, with a pale edge to the foot. (*Voy. Astrol.* t. 46. f. 20; *Duclos*, t. 30.)

5. Strephona tricolor. B.M.

White, black, and yellow, mixed; front of pillar (and sometimes all the inner lip) yellow-brown.

Oliva tricolor, *Lamk.* no. 22; *E. M.* t. 365. f. 4.
Duclos, Oliv. t. 20. f. 9–13.
Reeve, C. I. t. 12. f. 22.
Oliva sanguinolenta, *Lamk.* no. 23.
Duclos, Oliv. t. 20. f. 14–16.
Reeve, C. I. t. 13. f. 25.
Strephona sanguinolenta, *Gray, Guide B. M.* 24.
Voluta oliva, vars. C & F, *Dillw. R. S.* 512.
Oliva zebra, *Küster, C. C.* t. 5. f. 5, 6.
Oliva philantha, *Duclos, Oliv.* t. 20. f. 5, 6.
Oliva evania, *Duclos, Oliv.* t. 20. f. 3, 4.

Oliva elegans, *Lamk.* no. 11; *E. M.* t. 367. f. 3, t. 362. f. 3.
Duclos, Oliv. t. 21. f. 1–6.
Reeve, C. I. t. 12. f. 20.
Strephona elegans, *Gray, Guide B. M.* 24.
Oliva glandiformis, *Lamk.* no. 27.
Oliva tigrina, *Lamk.* no. 44.
Duclos, Oliv. t. 21. f. 7–12, t. 32. f. 1, 2.
Reeve, C. I. t. 12. f. 21.
Oliva macleaya, *Duclos, Oliv.* t. 21. f. 13–16.
Strephona tricolor, *Gray, Proc. Zool. Soc.* 1858, 42.

Hab. Fejee Islands; Madagascar.

Animal yellow, minutely black-dotted. (*Voy. Astrol.* t. 46. f. 2–6; *Duclos,* t. 31.)

6. STREPHONA EPISCOPALIS. B.M.

Throat purple.

Oliva episcopalis, *Lamk.* no. 12.
Lister, t. 719. f. 3.
Duclos, Oliv. t. 10. f. 11, 12.
Reeve, C. I. t. 13. f. 24.
Voluta oliva, var. D, *Dillw. R. S.* 512.
Strephona episcopalis, *Gray, Proc. Zool. Soc.* 1858, 42.

Hab. Louisiade Archipelago.

7. STREPHONA ERYTHROSTOMA. B.M.

Throat saffron colour.

Oliva erythrostoma, *Lamk.* no. 3; *E. M.* t. 361. f. 3.
Duclos, Oliv. t. 13. f. 1–7.
Reeve, C. I. t. 5. f. 7.
Cylindrus erythrostoma, *Meuschen.*
Voluta erythrostoma, *Dillw. R. S.* 511.
Oliva ponderosa, *Duclos, Oliv.* t. 13. f. 8, 9.
Reeve, C. I. t. 2. f. 4.
Oliva tremulina, *Lamk.* no. 5.
Duclos, Oliv. t. 11. f. 1–9.
Reeve, C. I. t. 4. f. 6.
Oliva olympiadina, *Duclos, Oliv.* t. 12. f. 10, 11, 12.
Reeve, C. I. t. 3. f. 5.
Oliva azemula, *Duclos, Oliv.* t. 14. f. 1, 2, 3.
Strephona erythrostoma, *Gray, Guide B. M.* 24; *Proc. Zool. Soc.* 1858, 43.

Hab. Mauritius and Philippines.

Animal reddish, with large brown spots. (*Voy. Astrol.* t. 46. f. 1; *Duclos,* t. 31.)

8. Strephona textilina. B.M.

Mouth white.

Oliva obtusaria, *Lamk. Hist.* no. 53.
Oliva textilina, *Lamk.* no. 2; *E. M.* t. 362. f. 5.
Duclos, Oliv. t. 14. f. 2–9.
Reeve, C. I. t. 6. f. 9.
Oliva pica, *Lamk.* no. 4.
Oliva zeilanica, *Lamk. Hist.* no. 54.
Oliva hepatica, *Lamk.* no. 35.
Voluta oliva, var. A, *Dillw. R. S.* 511.
Voluta erythrostoma, var., *Dillw. R. S.* 511.
Oliva granitella, *Lamk.* no. 18.
Oliva nobilis, *Reeve, C. I.* t. 2. f. 3 (mouth pale reddish).
Oliva irisans, part., *Reeve, C. I.* t. 6. f. 8. *b*, *c*, *d* (not *e*).
Strephona textilina, *Gray, Guide B. M.* 24; *Proc. Zool. Soc.* 1858, 43.

Hab. Mauritius.

Animal reddish, with large brown spots. (*Voy. Astrol.* t. 46. f. 7*a*.)

9. Strephona scripta. B.M.

Oliva scripta, *Lamk.* no. 21; *E. M.* t. 362. f. 4.
Duclos, Oliv. t. 10. f. 13, 14; t. 30. f. 5, 6 (animal).
Reeve, C. I. t. 14. f. 27.
Oliva mustelina, *Lamk.* no. 24.
Duclos, Oliv. t. 20. f. 1, 2.
Reeve, C. I. t. 13. f. 23.
Strephona scripta, *Gray, Proc. Zool. Soc.* 1858, 43.

10. Strephona litterata. B.M.

Oliva litterata, *Lamk.* no. 20; *E. M.* t. 362. f. 1.
Duclos, Oliv. t. 10. f. 15, 16.
Reeve, C. I. t. 11. f. 18.
Strephona litterata, *Gray, Proc. Zool. Soc.* 1858, 43.

Hab. West Indies.

Animal grey.

11. Strephona peruviana. B.M.

Oliva senegalensis, *Lamk.* no. 29; *E. M.* t. 364. f. 3.
Strephona senegalensis, *Gray, Guide B. M.* 24.
Oliva peruviana, *Lamk.* no. 28; *E. M.* t. 367. f. 4.
Duclos, Oliv. t. 15. f. 9–16.
Reeve, C. I. t. 9. f. 14.

Strephona peruviana, *Gray, Proc. Zool. Soc.* 1858, 43.
Var. Back of whorl more or less angular.
Hab. Peru; Central America.

12. Strephona reticularis. B.M.

Mouth white; suture with groups of radiating lines.

Oliva fusiformis, *Lamk.* no. 30; *E. M.* t. 367. f. 1.
Duclos, Oliv. t. 16. f. 12–16.
Reeve, C. I. t. 8. f. 11.
O. araneosa, *Lamk.* no. 19; *E. M.* t. 363. f. 1.
O. reticularis, *Lamk.* no. 16; *E. M.* t. 361. f. 1.
Duclos, Oliv. t. 9. f. 3–12.
Reeve, C. I. t. 10. f. 16.
O. hepatica, *Lamk.* no. 35.
O. timoria, *Duclos, Oliv.* t. 17. f. 11–13.
O. candida, *Lamk.* no. 42; *E. M.* t. 368. f. 4.
O. harpularia, *Lamk.* no. 34.
Chemn. x. f. 1376, 1377.
Reeve, C. I. t. 14. f. 28 (worn).
O. ustulata, *Lamk.* no. 36.
O. venulata, *Lamk.* no. 13; *E. M.* t. 361. f. 5.
Duclos, t. 16. f. 5, 6.
O. obesina, *Duclos*, t. 16. f. 9, 10.
O. pindarina, *Duclos*, t. 16. f. 7, 8.
O. julieta, *Duclos*, t. 16. f. 3, 4.
Reeve, C. I. t. 9. f. 15.
Strephona reticularis, *Gray, Proc. Zool. Soc.* 1858, 43.
Hab. Panama; California.

The following thirty species (?) are more or less allied to the last.

13. Strephona polpasta. B.M.

Oliva polpasta, *Duclos, Oliv.* t. 16. f. 1, 2.
Reeve, C. I. t. 14. f. 29.
Strephona polpasta, *Gray, Proc. Zool. Soc.* 1858, 43.
Hab. Panama.

14. Strephona stainforthii.

Oliva stainforthii, *Reeve, C. I.* t. 19. f. 40.
Strephona stainforthii, *Gray, Proc. Zool. Soc.* 1858, 44.

15. Strephona pintamella.

Oliva pintamella, *Duclos, Oliv.* t. 33. f. 7, 8.
Strephona pintamella, *Gray, Proc. Zool. Soc.* 1858, 44.

16. Strephona atalina.

Oliva atalina, *Duclos, Oliv.* t. 9. f. 9, 10.
Strephona atalina, *Gray, Proc. Zool. Soc.* 1858, 44.

17. Strephona quersolina.

Oliva quersolina, *Duclos, Oliv.* t. 9. f. 7, 8.
Strephona quersolina, *Gray, Proc. Zool. Soc.* 1858, 44.

18. Strephona nitidula.

Oliva nitidula, *Duclos, Oliv.* t. 9. f. 3, 4.
Strephona nitidula, *Gray, Proc. Zool. Soc.* 1858, 44.

19. Strephona oriola. B.M.

Oliva oriola, *Lamk.* no. 41; *E. M.* t. 366. f. 3, t. 367. f. 2.
Duclos, Oliv. t. 10. f. 1, 2.
Voluta oliva, var. V, *Dillwyn, R. S.* 513.
Strephona oriola, *Gray, Proc. Zool. Soc.* 1858, 44.

20. Strephona paxillus.

Oliva paxillus, *Reeve, C. I.* t. 21. f. 56.
Strephona paxillus, *Gray, Proc. Zool. Soc.* 1858, 44.

21. Strephona splendidula. B.M.

Oliva splendidula, *Sow. Tank. Cat. App.* 32.
Duclos, Oliv. t. 9. f. 1, 2.
Reeve, C. I. t. 11. f. 17.
Strephona splendidula, *Gray, Proc. Zool. Soc.* 1858, 44.
Hab. Panama.

22. Strephona tigridella.

Oliva tigridella, *Duclos, Oliv.* t. 8. f. 13–16.
Strephona tigridella, *Gray, Proc. Zool. Soc.* 1858, 45.

23. Strephona stellata.

Oliva stellata, *Duclos, Oliv.* t. 8. f. 11, 12.
Strephona stellata, *Gray, Proc. Zool. Soc.* 1858, 45.

24. Strephona lentiginosa.

Oliva lentiginosa, *Reeve, C. I.* t. 19. f. 45.
Strephona lentiginosa, *Gray, Proc. Zool. Soc.* 1858, 45.

25. Strephona jaspidea. B.M.

Oliva jaspidea, *Duclos, Oliv.* t. 8. f. 9, 10.

Oliva Duclosii, *Reeve, C. I.* t. 19. f. 44.
Strephona jaspidea, *Gray, Proc. Zool. Soc.* 1858, 45.
Hab. Philippines; Tahiti.

26. Strephona kaleontina. B.M.

Oliva kaleontina, *Duclos, Oliv.* t. 8. f. 7, 8.
Reeve, C. I. t. 20. f. 49.
Strephona kaleontina, *Gray, Proc. Zool. Soc.* 1858, 45.
Hab. Galapagos; Panama.

27. Strephona tringa.

Oliva tringa, *Duclos, Oliv.* t. 8. f. 5, 6.
Strephona tringa, *Gray, Proc. Zool. Soc.* 1858, 45.

28. Strephona australis. B.M.

Oliva australis, *Duclos, Oliv.* t. 8. f. 3, 4.
Reeve, C. I. t. 19. f. 42.
Strephona australis, *Gray, Proc. Zool. Soc.* 1858, 45.
Hab. Swan River (*cab. Gray*).

29. Strephona anomina.

Oliva anomina, *Duclos, Oliv.* t. 8. f. 1, 2.
Strephona anomina, *Gray, Proc. Zool. Soc.* 1858, 45.

30. Strephona Cumingii.

Oliva Cumingii, *Reeve, C. I.* t. 11. f. 19.
Strephona Cumingii, *Gray, Proc. Zool. Soc.* 1858, 45.
Hab. California.

31. Strephona flammulata. B.M.

Oliva flammulata, *Lamk.* no. 17; *E. M.* t. 367. f. 5.
Duclos, Oliv. t. 8. f. 17–20; t. 30. f. 3, 4, animal (not *Reeve, C. I.* t. 19. f. 41).
Voluta ispidula, var., *Born.*
Voluta oliva, var. T, *Dillw. R. S.* 513.
Strephona flammulata, *Gray, Proc. Zool. Soc.* 1858, 45.
Hab. Sierra Leone.

32. Strephona olorinella.

Oliva olorinella, *Duclos, Oliv.* t. 6. f. 15, 16.
Strephona olorinella, *Gray, Proc. Zool. Soc.* 1858, 45.

33. Strephona flaveola.

Oliva flaveola, *Duclos, Oliv.* t. 6. f. 17–20.
Strephona flaveola, *Gray, Proc. Zool. Soc.* 1858, 45.

34. Strephona ligneola.

Oliva ligneola, *Reeve, C. I.* t. 21. f. 57.
Strephona ligneola, *Gray, Proc. Zool. Soc.* 1858, 46.

35. Strephona schumacheriana.

Oliva schumacheriana, *Beck.*
Strephona schumacheriana, *Gray, Proc. Zool. Soc.* 1858, 46.
Hab. California.

Front of pillar lip brown.

36. Strephona rufula.

Oliva rufula, *Duclos, Oliv.* t. 19. f. 9, 10.
Reeve, C. I. t. 20. f. 50.
Strephona rufula, *Gray, Proc. Zool. Soc.* 1858, 46.

Spire very short.

37. Strephona neoslina.

Oliva neoslina, *Duclos, Oliv.* t. 19. f. 11–16.
Strephona neoslina, *Gray, Proc. Zool. Soc.* 1858, 46.

38. Strephona sidelia.

Oliva sidelia, *Duclos, Oliv.* t. 19. f. 1, 2.
Strephona sidelia, *Gray, Proc. Zool. Soc.* 1858, 46.

39. Strephona caroliniana.

Oliva caroliniana, *Duclos, Oliv.* t. 19. f. 3–8.
Oliva bulbiformis, var., *Reeve.*
Strephona caroliniana, *Gray, Proc. Zool. Soc.* 1858, 46.

40. Strephona hemiltona.

Oliva hemiltona, *Duclos, Oliv.* t. 19. f. 3, 4.
Strephona hemiltona, *Gray, Proc. Zool. Soc.* 1858, 46.

41. Strephona multiplicata.

Oliva multiplicata, *Reeve, C. I.* t. 20. f. 52.
Strephona multiplicata, *Gray, Proc. Zool. Soc.* 1858, 46.

42. STREPHONA LUGUBRIS. B.M.

Oliva lugubris, *Lamk.* no. 25.
Duclos, Oliv. t. 10. f. 5, 6.
Strephona lugubris, *Gray, Proc. Zool. Soc.* 1858, 46.

Genus 2. ISPIDULA.

Shell cylindrical; spire conical, sutural groove open to the top; aperture linear; pillar lip simple, only dilated in front, not covering the front belt; inner lip thickened the whole length, with two or three oblique grooves in front.

Foot elongate, longer than the shell, acute behind, not dilated on the sides in front, not or only slightly covering the shell; front lobes moderate, broad, produced, and acute at the sides. Tentacles elongated, exposed; eyes one-third from the base. Operculum none.—*Duclos*, t. 7. f. 2.

1. ISPIDULA VARIABILIS. B.M.

Throat brown; inner lip thickened, with two or three deep grooves in front.

Oliva ispidula, *Lamk.* no. 40; *E. M.* t. 366. f. 6.
Reeve, C. I. t. 17. f. 34.
Duclos, Oliv. t. 7. f. 1–14 (animal).
Strephona ispidula, *Gray, Guide B. M.* 26.
Voluta oliva, vars. R, S, *Dillw. R. S.* 513.
Ispidula variabilis, *Gray, Proc. Zool. Soc.* 1858, 47.
Hab. Indian Ocean.

Genus 3. RAMOLA.

Shell subcylindrical; spire small, conical, sutural groove open to the tip; aperture narrow; anterior belt narrow, single. Pillar lip expanded in front, not covering the front belt, with numerous equal transverse grooves in front. Operculum none. "Foot large, covering the shell."—*Adams.*

Olivella, part., *Gray, Guide B. M.* 24.

1. RAMOLA VOLUTELLA. B.M.

Oliva volutella, *Lamk.* no. 43.
Duclos, Oliv. t. 6. f. 7–14.
Reeve, C. I. t. 21. f. 54.
Oliva cærulea, *Gray, in Wood, Suppl.* t. 6. f. 36.
Olivella volutella, *Gray, Guide Moll. B.M.* 24; *Fig. Moll.* t. 83 *a.* f. 2.

Oliva razamola, *Duclos, Oliv.* t. 6. f. 5, 6.
Ramola volutella, *Gray, Proc. Zool. Soc.* 1858, 47.
Hab. West coast of America.

Genus 4. CARMIONE.

Shell ovate, subcylindrical; spire small, sutural groove open to the tip; aperture linear, narrow. Pillar lip expanded sufficiently far back to cover the front callous belt, and furnished with a more or less distinct raised cross ridge; inner lip grooved.

1. CARMIONE VENTRICOSA. B.M.

Voluta ventricosa, *Soland. MSS.*
Dillw. R. S. 515.
Oliva inflata, *Lamk.* no. 32; *E. M.* t. 364. f. 5.
Duclos, Oliv. t. 22. f. 1–16.
Reeve, C. I. t. 15. f. 31.
O. fabagina, *Lamk. Ann.* no. 52; *Hist.* no. 56; *E. M.* t. 363. f. 5.
O. bicincta, *Lamk. Hist.* no. 33; *E. M.* t. 364. f. 1.
O. undata, *Lamk.* no. 31; *E. M.* t. 364. f. 7.
O. bicingulata, *Lamk. Ann.* no. 33.
O. tigrina, *Lamk.* no. 44.
O. bulbiformis, *Duclos,* t. 27. f. 10–12.
Reeve, C. I. t. 13. f. 26.
Carmione ventricosa, *Gray, Proc. Zool. Soc.* 1858, 47.
Hab. Moluccas.

** *Spire callous, obliterating the sutural grooves, except on the last or lowest whorl.*

Genus 5. CLANEOPHILA.

Shell ventricose or obconic; spire callous, the sutural groove closed on all except the last whorl; aperture ample. Pillar lip expanded, swollen and callous behind, twisted and obliquely grooved in front. Foot elongate, about as long as the shell, broad, rather tapering behind, dilated in front, and covering the greater part of the shell; front lobes rather large, crescent-shaped, outer hinder angles acute. Tentacles elongate; eyes one-third from the base. Operculum none.—*Duclos,* t. 33. f. 6.

• *Shell obconic; front belt rather narrow. Spire broad, depressed.*

1. CLANEOPHILA BRASILIANA. B.M.

Oliva brasiliana, *Lamk. Ann.* no. 45.
Duclos, Oliv. t. 29. f. 1, 3; t. 33. f. 5, 6 (animal).
Reeve, C. I. t. 8. f. 13.

Voluta pinguis, *Soland. MSS.*
Dillw. R. S. 516.
Oliva brasiliensis, *Chemn.* x. f. 1367, 1368.
Lamk. Hist. no. 45.
Claneophila brasiliana, *Gray, Proc. Zool. Soc.* 1858, 48.
Hab. Brazils.

** *Shell ovate: front belt broad. Spire small, very callous.*

2. CLANEOPHILA AURICULARIA. B.M.

Shell ovate; pillar lip slightly expanded, moderate.
Oliva auricularia, *Lamk.* no. 47.
Duclos, t. 29. f. 47.
Oliva aquatilis, *Reeve, C. I.* t. 18. f. 37.
Olivancillaria auricularia, *D'Orb. Voy. Amér. Mérid.* 421. t. 59. f. 20, 22 (shell cop.).
Duclos, Oliv. t. 32. f. 1, 2.
Oliva patula, *Sow. Tank. Cat.* 33.
Claneophila auricularia, *Gray, Proc. Zool. Soc.* 1848, 48.
Hab. South America.

3. CLANEOPHILA GIBBOSA.

Shell ventricose, subangular; mouth very wide; pillar with a large tubercular callus in front.
Oliva claneophila, *Duclos, Oliv.* t. 29. f. 89.
O. auricularia, *Reeve, C. I.* t. 18. f. 39.
Claneophila gibbosa, *Gray, Proc. Zool. Soc.* 1858, 48.
Hab. West Africa. (Not Brazil, as said by Mr. Reeve.)

Genus 6. GALEOLA.

Shell subcylindrical; spire small, acute, callous, sutural groove of upper whorl obliterated; aperture linear. Pillar lip defined, expanded in front, not covering the front belt; inner lip thickened, cross grooved; front belt narrow. Operculum —— ? Animal —— ?

Lamarck observed the peculiarity of the spire of the genus in the specific character of *Oliva tessellata* (*Hist.* no. 38).

* *Spire conical, acute.*

1. GALEOLA IRISANS. B.M.

Spire conical, acute. Brown or yellow or greyish, uniform, or with angular marks and two interrupted bands; throat and pillar white.

Oliva irisans, *Lamk.* no. 10.
Duclos, Oliv. t. 28. f. 7, 8, 9, 10, 11, 12.
Voluta oliva, var. B, *Dillw. R. S.* 512.
Galeola irisans, *Gray, Proc. Zool. Soc.* 1858, 49.

2. GALEOLA CARNEOLA. B.M.

Orange; tip of spire white.

Voluta carneolus, *Gmelin*, 3443. no. 24.
V. carneola, *Dillw. R. S.* 520.
V. aurora, *Soland. MSS.*
Oliva carneola, *Lamk.* no. 39; *E. M.* t. 365. f. 5.
Duclos, Oliv. t. 26. f. 3–16.
Reeve, C. I. t. 22. f. 60.
Galeola carneola, *Gray, Proc. Zool. Soc.* 1858, 49.
Oliva athenia, *Duclos, Oliv.* t. 26. f. 17–20.
O. todosina, *Duclos, Oliv.* t. 25. f. 9, 10.
O. calosoma, *Duclos, Oliv.* t. 26. f. 1, 2.

Hab. Feejee Islands.

Var. 1. Brown, with pale angular spots, or pale brown, with darker angular lines.

Var. 2. Subcentral angular belt.

3. GALEOLA TIGRINA. B.M.

Yellow, dark-spotted; throat and tip of spire purple.

Cylindrus tigrinus, *Meuschen.*
Voluta tigrina, *Dillw. R. S.* 520.
Duclos, Oliv. t. 27. f. 1–4.
Reeve, C. I. t. 20. f. 53.
Galeola tigrina, *Gray, Proc. Zool. Soc.* 1858, 49.
Oliva tessellata, *Lamk.* no. 38; *E. M.* t. 368. f. 1.
Voluta maculata, *Soland. MSS.*
V. ispidula, var., *Gmelin.*
V. oliva, var., *Born.*

Hab. Philippines.

4. GALEOLA DACTYLIOLA.

Oliva dactyliola, *Duclos, Oliv.* t. 27. f. 3–9.
O. bulbiformis, *Duclos, Oliv.* t. 27. f. 10–13.
Reeve, C. I. t. 13. f. 26.
O. leucostoma, *Duclos, Oliv.* t. 27. f. 14–16.
Galeola dactyola, *Gray, Proc. Zool. Soc.* 1858, 49.

** *Spire depressed.*

5. GALEOLA AVELLANA.

Spire short, blunt; throat white.

Oliva avellana, *Lamk.* no. 37.
Duclos, Oliv. t. 28. f. 1, 3.
O. galeola, *Duclos, Oliv.* t. 28. f. 4–6.
O. irisans, *Reeve, C. I.* t. 6. f. 8 *a* (only, not *b*, *c*, *d*).
Galeola avellana, *Gray, Proc. Zool. Soc.* 1858, 49.

6. GALEOLA LEPIDA.

Oliva lepida, *Duclos, Oliv.* t. 25. f. 15–20.
Galeola lepida, *Gray, Proc. Zool. Soc.* 1858, 49.

7. GALEOLA VOLVARIOIDES.

Oliva volvarioides, *Duclos, Oliv.* t. 25. f. 11–14.
Reeve, C. I. t. 22. f. 59.
Galeola volvarioides, *Gray, Proc. Zool. Soc.* 1858, 50.

8. GALEOLA ? PYGMÆA.

Oliva pygmæa, *Reeve, C. I.* t. 26. f. 75.
Galeola ? pygmæa, *Gray, Proc. Zool. Soc.* 1858, 50.

9. GALEOLA ? PICTA.

Oliva picta, *Reeve, C. I.* t. 26. f. 79.
Galeola picta, *Gray, Proc. Zool. Soc.* 1858, 50.

Hab. Philippines.

II. *Head scarcely exposed; tentacles short; eyes none. Foot elongate, dilated in front, one-coloured. Shell with the sutural groove open to the apex.*

Genus 7. ANAZOLA.

Shell ovate or subcylindrical; spire conical, sutural groove open to the tip; aperture oblong, rather wide; pillar lip expanded; inner lip thickened the whole length, twisted and grooved in front; belt broad, with an anterior groove in the usual place of the narrow belt.

Foot (*A. subulata*) elongate, longer than the shell, acute behind; the front half dilated, reflected over and covering the front and sides of the shell; front lobes semicircular, hinder angle acute. Tentacles short, broad. Eyes none? Operculum none.—*Duclos*, t. 31. f. 1, 2.

1. ANAZOLA GIBBOSA. B.M.

Pillar with a single groove in front, and several smaller behind it.

Voluta gibbosa, *Born, Mus.* 215.
Dillw. R. S. 517.
Anazola gibbosa, *Gray, Proc. Zool. Soc.* 1858, 50.
Voluta utriculus, *Gmel. S. N.* 3441.
Oliva utriculus, *Lamk.* no. 46; *E. M.* t. 365. f. 6.
Duclos, Oliv. t. 17. f. 1–8.
Reeve, C. I. t. 14. f. 32.
O. cingulata, *Chemn.* x. f. 1369, 1370.
O. nebulosa, *Lamk. Hist.* no. 55.
Martini, f. 539, 540.
O. gibbosa, *Reeve, C. I.* t. 8. f. 12.
Hab. West Africa.

2. ANAZOLA ACUMINATA. B.M.

Suture pencilled.

Voluta ispidula, *Linn. S. N.* 1188.
Dillw. Var. A, *R. S.* 518.
V. utriculus, var., *Gmelin.*
Oliva acuminata, *Lamk.* no. 48; *E. M.* t. 368. f. 3.
Duclos, Oliv. t. 12. f. 1–4.
Reeve, C. I. t. 16. f. 33 *a, c.*
Anazola acuminata, *Gray, Proc. Zool. Soc.* 1858, 50.
Hab. West Africa.

3. ANAZOLA SUBULATA.

Oliva subulata, *Lamk.* no. 49; *E. M.* t. 368. f. 6.
Duclos, Oliv. t. 12. f. 5–9.
Reeve, C. I. t. 16. f. 33 *d.*
Voluta ispidula, var. B, *Dillw. R. S.* 518.
Oliva luteola, *Lamk.* no. 50.
Martini, f. 554.
O. triticea, *Duclos, Oliv.* t. 1. f. 5, 6.
Reeve, C. I. t. 27. f. 82.
Anazola subulata, *Gray, Proc. Zool. Soc.* 1858, 50.
Hab. West Africa.

These two may be only varieties of one species.

4. ANAZOLA LEUCOZONALIS.

Oliva leucozonalis, *Gray, Beechey's Voy.* 130. t. 36. f. 24.
Reeve, C. I. t. 24. f. 67.
Anazola leucozonalis, *Gray, Proc. Zool. Soc.* 1858, 50.
Hab. Senegal.

5. ANAZOLA UNDATELLA. B.M.

Oliva undatella, *Lamk. Hist.* no. 58; *Ann.* no. 55.
Gray, Beechey's Voy. 131. t. 36. f. 23–27.
Duclos, Oliv. t. 5. f. 5–10.
Reeve, C. I. t. 25. f. 73.
Anazola undatella, *Gray, Proc. Zool. Soc.* 1858, 51.
Voluta tenebrosa, *Goodall, Wood, Ind. Suppl.* t. 4. f. 38.
Oliva zonalis, *Menke.*
Olivella undatella, *Gray.*
? Oliva hieroglyphica, *Reeve, C. I.* t. 24. f. 68.
O. nodulina, *Duclos, Oliv.* t. 5. f. 13, 14.
O. ozodina, *Duclos, Oliv.* t. 5. f. 19, 20.

Hab. West coast of South America.

6. ANAZOLA PULCHELLA.

Oliva pulchella, *Duclos, Oliv.* t. 5. f. 11, 12.
Anazola pulchella, *Gray, Proc. Zool. Soc.* 1858, 51.

7. ANAZOLA PANICULATA.

Oliva paniculata, *Duclos, Oliv.* t. 5. f. 15–18.
Anazola paniculata, *Gray, Proc. Zool. Soc.* 1858, 51.

Genus 8. AGARONIA.

Shell ovate, subcylindrical; spire acute, sutural groove open to the tip; aperture rather wide, ovate; inner lip defined, thin; pillar obliquely twisted in front, with several oblique grooves; belt moderate, single. Foot (*A. hiatula*) elongate, longer than the shell, acute behind, wider in front, covering part of the front of the shell; front lobes semicircular, wider in front, acute at the outer hinder angles. Head hidden; tentacles very small; eyes none. Operculum —— ?—*Duclos*, t. 4 *bis*.

* *Anterior belt moderate.*

1. AGARONIA TESTACEA. B.M.

Spire conical; suture linear, distinct to the tip; pillar white; belt brown or white, single, smooth.

Oliva testacea, *Lamk.* no. 51.
Reeve, C. I. t. 18. f. 36.
Agaronia testacea, *Adams.*
Gray, Proc. Zool. Soc. 1858, 51.
Agaronia hiatula, *Gray, Beechey's Voy.* 132.

Oliva hiatula, *Duclos, Oliv.* t. 3. f. 13, 14.
Oliva steeriæ, *Reeve, C. I.* t. 18. f. 37.

Hab. Pacific; Mexico (*Lamk.*).

2. AGARONIA INDUSICA.

Pillar white.

Oliva indusica, *Reeve, C. I.* t. 19. f. 43.
Agaronia indusica, *Gray, Proc. Zool. Soc.* 1858, 51.

Hab. Kurrachee.

3. AGARONIA CINCTA.

Pillar white; shell with two brown bands.

Oliva cincta, *Reeve, C. I.* t. 20. f. 47.
Agaronia cincta, *Gray, Proc. Zool. Soc.* 1858, 51.

Hab. —— ?

4. AGARONIA CONTORTUPLICATA.

Pillar white; shell grey; throat dark red-brown.

Oliva contortuplicata, *Reeve, C. I.* t. 20. f. 51.
Agaronia contortuplicata, *Gray, Proc. Zool. Soc.* 1858, 52.

Hab. Senegal.

These may be all local varieties of the same species.

** *Anterior belt broader.*

5. AGARONIA HIATULA. B.M.

Pillar purple-brown in front; belt brown or white.

Voluta hiatula, *Gmelin, S. N.* 3442.
Dillw. R. S. 518.
V. ringens, *Soland. MSS.*
Oliva hiatula, *Lamk.* no. 52; *E. M.* t. 368. f. 5.
Reeve, C. I. t. 18. f. 35.
Agaronia hiatula, *Gray, Guide B. M.* 25; *Proc. Zool. Soc.* 1858, 52.
Oliva hiatula, var., *Duclos, Oliv.* t. 3. f. 14, 15, t. 4 *bis*, f. 17–21.
Ancilla maculata, *Schum.*
Hiatula lamarckii, *Swains.*

Hab. Mouth of Niger (*Adanson*); East coast of Africa (*Capt. Owen*).

6. Agaronia nitelina.

Pale brown; front belt rather wide; inner lip pale brown.

Oliva nitelina, *Duclos, Oliv.* t. 3. f. 1, 2.
Oliva ancillarioides, *Reeve, C. I.* t. 21. f. 55.
Agaronia nitelina, *Gray, Proc. Zool. Soc.* 1858, 52.
Hab. Kurrachee.

7. Agaronia megalostoma.

Agaronia megalostoma, *Adams, Gen. Moll.* t. 15. f. 3.

III. *Head hidden; tentacles none; eyes none. Foot short, very broad, rounded on the sides, one-coloured. Operculum distinct.*

Genus 9. OLIVINA.

Shell subcylindrical; spire conical; sutural groove open to the tip; aperture linear or subovate; inner lip defined; pillar obliquely twisted in front and obliquely grooved; belt single, rather narrow. Foot (*Ol. puelchana*) short, much shorter than the shell; very broad, rounded at the sides, enveloping the front of the shell; front lobes very small, narrow, acute at the sides. Head almost hidden; tentacles none. Operculum distinct.—*D'Orb. Voy.*

Olivella, part., *Gray, Guide B.M.* 24.

* *Shell white; aperture narrow.*

1. Olivina gracilis. B.M.

Throat purplish.

Oliva gracilis, *Sow., Gray, Beechey's Voy.* 130. t. 36. f. 1.
Duclos, Oliv. t. 1. f. 17, 18.
Reeve, C. I. t. 20. f. 46.
Olivina gracilis, *Gray, Proc. Zool. Soc.* 1858, 52.

2. Olivina razamola.

Oliva razamola, *Duclos, Oliv.* t. 6. f. 3–6.
Olivina razamola, *Gray, Proc. Zool. Soc.* 1858, 52.

3. Olivina caldania.

Oliva caldania, *Duclos, Oliv.* t. 6. f. 3, 4.
Olivina caldania, *Gray, Proc. Zool. Soc.* 1858, 52.

4. Olivina tunquina.

Oliva tunquina, *Duclos, Oliv.* t. 6. f. 1, 2.
Olivina tunquina, *Gray, Proc. Zool. Soc.* 1858, 53.

5. Olivina pulchella.

Oliva pulchella, *Duclos, Oliv.* t. 5. f. 11, 12.
Reeve, C. I. t. 30. f. 98.
Oliva oryza, *Lamk. Hist.* no. 62; *Ann.* no. 59.
Reeve, C. I. t. 27. f. 81.
Oliva menilifera, *Reeve, C. I.* t. 27. f. 84.
Oliva pellucida, *Reeve, C. I.* t. 27. f. 85.
Olivina pulchella, *Gray, Proc. Zool. Soc.* 1858, 53.

6. Olivina anazora. B.M.

Oliva anazora, *Duclos, Oliv.* t. 5. f. 3, 4.
Reeve, C. I. t. 25. f. 74.
Olivina anazora, *Gray, Proc. Zool. Soc.* 1858, 53.
Hab. Columbia.

7. Olivina lanceolata.

Oliva lanceolata, *Reeve, C. I.* t. 30. f. 95.
Olivina lanceolata, *Gray, Proc. Zool. Soc.* 1858, 53.
Hab. Luzon.

8. Olivina miriadina. B.M.

Oliva miriadina, *Duclos, Oliv.* t. 5. f. 1, 2.
Reeve, C. I. t. 30. f. 94.
Olivina miriadina, *Gray, Proc. Zool. Soc.* 1858, 53.
Hab. West Indies.

9. Olivina bullata.

Oliva bullata, *Reeve, C. I.* t. 30. f. 96.
Olivina bullata, *Gray, Proc. Zool. Soc.* 1858, 53.
Hab. West Indies.

10. Olivina alectona.

Oliva alectona, *Duclos, Oliv.* t. 4 *bis*, f. 15, 16.
Olivina alectona, *Gray, Proc. Zool. Soc.* 1858, 53.

11. Olivina puelchana. B.M.

Oliva puelchana, *D'Orb. Amér. Mérid.* 418. t. 49. f. 13–19.
Desh., Lamk. no. 64.
Duclos, Oliv. t. 4 *bis*, f. 1–6.

Olivina puelchana, *Gray, Proc. Zool. Soc.* 1858, 53.
Olivella puelchana, *Gray, Guide B. M.* 25.
Hab. Patagonia; St. Blas.

12. Olivina tehuelchana. B.M.

Oliva tehuelchana, *D'Orb. Amér. Mérid.* 418. t. 49. f. 7–12.
Desh., Lamk. no. 63.
Duclos, Oliv. t. 4 *bis*, f. 7–14.
Olivina tehuelchana, *Gray, Proc. Zool. Soc.* 1858, 53.
Olivella tehuelchana, *Gray, Guide B. M.* 25.
Hab. Patagonia; St. Blas.

13. Olivina esther.

Oliva esther, *Duclos, Oliv.* t. 3. f. 7, 8.
Reeve, C. I. t. 23. f. 65.
Olivina esther, *Gray, Proc. Zool. Soc.* 1858, 53.

14. Olivina columba.

Oliva columba, *Duclos, Oliv.* t. 3. f. 3, 4.
Olivina columba, *Gray, Proc. Zool. Soc.* 1858, 53.

15. Olivina strigata.

Oliva strigata, *Reeve, C. I.* t. 25. f. 72.
Olivina strigata, *Gray, Proc. Zool. Soc.* 1858, 54.
Hab. West Indies.

16. Olivina dealbata.

Oliva dealbata, *Reeve, C. I.* t. 25. f. 71.
Olivina dealbata, *Gray, Proc. Zool. Soc.* 1858, 54.

17. Olivina cærulea.

Oliva cærulea, *Reeve, C. I.* t. 24. f. 70.
Olivina cærulea, *Gray, Proc. Zool. Soc.* 1858, 54.

18. Olivina zenopira.

Oliva zenopira, *Duclos, Oliv.* t. 3. f. 11, 12.
Reeve, C. I. t. 24. f. 69.
Olivina zenopira, *Gray, Proc. Zool. Soc.* 1858, 54.
Hab. Madagascar.

19. Olivina selasia.

Oliva selasia, *Duclos, Oliv.* t. 2. f. 19, 20.
Olivina selasia, *Gray, Proc. Zool. Soc.* 1858, 54.

20. Olivina tergina. B.M.

Oliva tergina, *Duclos, Oliv.* t. 2. f. 13–16.
Reeve, C. I. t. 26. f. 80.
Olivina tergina, *Gray, Proc. Zool. Soc.* 1858, 54.
Hab. Central America.

21. Olivina fulgida.

Oliva fulgida, *Reeve, C. I.* t. 26. f. 78.
Olivina fulgida, *Gray, Proc. Zool. Soc.* 1858, 54.
Hab. West Indies.

22. Olivina mutica. B.M.

Oliva mutica, *Duclos, Oliv.* t. 2. f. 5–8.
Reeve, C. I. t. 28. f. 86, t. 29. f. 93.
Olivina mutica, *Gray, Proc. Zool. Soc.* 1858, 54.
Hab. Rio de Janeiro.

23. Olivina zigzag.

Oliva zigzag, *Duclos, Oliv.* t. 2. f. 1–4 (operc. *a*).
Olivina zigzag, *Gray, Proc. Zool. Soc.* 1858, 54.

24. Olivina mandarina.

Oliva mandarina, *Duclos, Oliv.* t. 1. f. 19, 20.
Olivina mandarina, *Gray, Proc. Zool. Soc.* 1858, 54.

25. Olivina jaspidea. B.M.

Voluta jaspidea, *Gmelin, S. N.* 3442.
Dillw. R. S. 519.
Oliva eburnea, *Lamk. Hist.* no. 59 ; *Ann.* no. 56.
Duclos, Oliv. t. 1. f. 13–16.
Oliva conoidalis, *Lamk. Hist.* no. 57 ; *Ann.* no. 54.
Lister, t. 725. f. 13.
Duclos, Oliv. t. 2. f. 17, 18.
Voluta nivea, *Gmelin.*
Dillw. R. S. 519.
Oliva nivea, *Desh., Reeve, C. I.* t. 23. f. 64.

Oliva jaspidea, *Desh.*, *Reeve*, *C. I.* t. 22. f. 58.
Olivina jaspidea, *Gray*, *Proc. Zool. Soc.* 1858, 54.
Hab. Barbadoes (*Lister*); St. Vincent's, West Indies.

26. Olivina mica.

Oliva mica, *Duclos*, *Oliv.* t. 11, 12.
Olivina mica, *Gray*, *Proc. Zool. Soc.* 1858, 54.

27. Olivina guildingii. B.M.

Oliva guildingii, *Reeve*, *C. I.* t. 28. f. 89.
Olivina guildingii, *Gray*, *Proc. Zool. Soc.* 1858, 55.
Hab. West Indies.

28. Olivina fura.

Oliva fura, *Reeve*, *C. I.* t. 30. f. 97.
Olivina fura, *Gray*, *Proc. Zool. Soc.* 1858, 55.

29. Olivina lepta.

Oliva lepta, *Duclos*, *Oliv.* t. 1. f. 7, 8.
Olivina lepta, *Gray*, *Proc. Zool. Soc.* 1858, 55.

30. Olivina fimbriata.

Oliva fimbriata, *Reeve*, *C. I.* t. 29. f. 92.
Olivina fimbriata, *Gray*, *Proc. Zool. Soc.* 1858, 55.
Hab. West Indies.

It is very doubtful to my mind if the whole, or at least by far the greater part, of the preceding species are not all local varieties of the same species: but as they have been named, I do not consider it right to reduce them to varieties without good evidence.

31. Olivina lineolata. B.M.

Oliva lineolata, *Gray*, *in B. M.* 1827, *Beechey's Voy.* 131.
Oliva Dama, *Goodall**, *in Wood*, *Cat. Suppl.* t. 6. f. 37.
Duclos, *Oliv.* t. 3. f. 5, 6.
Reeve, *C. I.* t. 23. f. 63.

* Many of the names of the shells in Wood's Suppl. were arbitrarily altered by the late Dr. Goodall as the work passed through the press, overlooking the fact that some of them had been established by prior publication; and the proper names were given to the species in the MS. which was submitted to Dr. Goodall's inspection.

Oliva purpurata, *Swains. Z. Ill.* t. 2. f. 1.
Oliva gracilis, *Duclos, Oliv.* t. 1. f. 17, 18.
Olivella lineolata, *Adams, Gray.*
Olivina lineolata, *Gray, Proc. Zool. Soc.* 1858, 55.
Hab. California.

** *Shell grey, black-banded; aperture subovate.*

32. Olivina columellaris. B.M.

Shell smooth.

Oliva columellaris, *Sow. Tank. Cat.* 34.
Wood, Suppl. t. 4. f. 34.
Duclos, Oliv. t. 2. f. 11, 12.
Reeve, C. I. t. 23. f. 62.
Olivella columellaris, *Gray, Guide B. M.* 25.
Olivina columellaris, *Gray, Proc. Zool. Soc.* 1858, 55.
Hab. Peru.

33. Olivina zonalis. B.M.

Shell smooth, small.

Oliva zonalis, *Lamk. Hist.* no. 61; *Ann.* no. 58.
Gray, Beechey's Voy. 131. t. 36. f. 25.
Duclos, Oliv. t. 1. f. 3, 4.
Reeve, C. I. t. 29. f. 90.
Oliva attenuata, *Reeve, C. I.* t. 29. f. 90.
Olivina zonalis, *Gray, Proc. Zool. Soc.* 1858, 55.
Hab. Mexico.

34. Olivina semisulcata. B.M.

Shell, hinder half of the last whorl longitudinally grooved.

Oliva semisulcata, *Gray, Beechey's Voy.* 130. t. 36. f. 10.
Reeve, C. I. t. 33. f. 61.
Olivina semisulcata, *Gray, Proc. Zool. Soc.* 1858, 55.
Olivella semistriata, *Gray, Guide B. M.* 25.
Hab. West Columbia.

35. Olivina zanoëta.

Blackish, with a subcentral white band.

Oliva zanoëta, *Duclos, Oliv.* t. 2. f. 9, 10.
Reeve, C. I. t. 26. f. 76.
Olivina zanoëta, *Gray, Proc. Zool. Soc.* 1858, 56.

Genus 10. SCAPHULA.

Shell ovate, spire conical, sutural groove open to the apex; aperture ovate; inner lip rather expanded, thickened, defined, smooth, with two small plaits in front; anterior belt very narrow. Foot (*Oliva biplicata* or *auricularia?*) rather short, about the length of the shell, broad, much dilated on the sides and covering the whole of the shell; the front lobes very large, broad, oblong, rounded on the sides. Head hidden; tentacles none; eyes none. Operculum none. Animal pale grey-brown, not spotted.

1. SCAPHULA BIPLICATA. B.M.

Grey-brown; inner lip white; spire conical; suture dark brown.

Oliva biplicata, *Sow. Tank. Cat.* 33.
Duclos, Oliv. t. 3. f. 9, 10.
Reeve, C. I. t. 20. f. 48.
Oliva nux, *Goodall, Wood, Cat. Suppl.* t. 4. f. 33.
Olivancilla auricularia, *D'Orb. Voy. Amér. Mérid.* 421. t. 59. f. 20–22, shell (animal?).
Scaphula auricularia, *Gray, Guide B. M.* 25, from *D'Orb. fig.*
Scaphula biplicata, *Gray, Proc. Zool. Soc.* 1858, 56.

Hab. Pacific Ocean; Coast of South America.

Though M. D'Orbigny in his text correctly described *Oliva auricularia* of Lamarck, yet in his figure of the animal he represents the shell of *Oliva biplicata*, which does not even answer to the character of the genus to which he refers it; M. Deshayes has referred both animal and shell to that species (see *Lamk. Hist.* ed. 2. x. 634).

M. Duclos to obviate the inconsistency—on what authority I do not know—in his enlarged copy of M. D'Orbigny's figure of the animal, places on it a figure of the shell of the true *Oliva auricularia* of Lamarck!

It must be left to succeeding naturalists to discover if the animal figured by M. D'Orbigny is that of *O. biplicata* or *O. auricularia*. My genus *Scaphula* was established on D'Orbigny's account of the animal.

2. SCAPHULA ROSALINA. B.M.

White, with distant zigzag yellow lines; front of pillar rose-coloured.

Oliva rosalina, *Duclos, Oliv.* t. 1. f. 1, 2.
Reeve, C. I. t. 30. f. 99.
Scaphula rosalina, *Gray, Proc. Zool. Soc.* 1858, 56.

Hab. West Indies.

Genus 11. MICANA.

Shell ovate or obconic; spire conical, callous; upper sutural groove obliterated; aperture ovate; inner lip thickened, expanded; pillar with two small grooves in front; anterior belt narrow, single. Animal —— ? Operculum half-ovate, horny.

1. MICANA NANA. B.M.

Voluta nitidula, *Soland. MSS.*
Dillw. R. S. 521.
V. utriculus, var., *Gmelin, E. M.* t. 363. f. 4.
Oliva nana, *Lamk. Hist.* no. 60; *Ann.* no. 57; *E. M.* t. 363. f. 3.
Duclos, Oliv. t. 25. f. 5–8 (operc. A, B).
Reeve, C. I. t. 23. f. 66.
Voluta ispidula, var., *Born.*
Micana nana, *Gray, Proc. Zool. Soc.* 1858, 57.
Oliva micans, *Desh.*
Voluta micans, *Soland. MSS.*
Dillw. R. S. 521.
Oliva millepunctata, *Duclos, Oliv.* t. 25. f. 1–4.
Reeve, C. I. t. 28. f. 87.
Oliva oryza, *Duclos, Oliv.* t. 1. f. 9, 10.
Voluta oryza, *Dillw. R. S.* 522.
Oliva rufifasciata, *Reeve, C. I.* t. 28. f. 88.

Hab. West Indies.

The Olives are known from the *Ancillariæ* by the sutural groove on the spire; but in some species which have a very distinct groove, it becomes obliterated and entirely hidden by a callous deposit on the spire, especially on the upper whorls.

Duclos regarded this deposition of shelly matter on the spire as a good character for the separation of the species, and I was induced to follow his opinion, and have, in the 'Proceedings of the Zoological Society,' given to his section a distinct generic name. I believe that it is a very permanent character in some species, but at the same time it is certainly not permanent in others: thus, in the British Museum there are four specimens of *Oliva mustelina*? received at the same time from China, two of which have the groove quite open to the tip, one with it partly closed, and the other with the grooves on the upper whorls quite obliterated and covered with a thick callosity; this latter specimen is considered by M. Duclos as another species and referred to a different section. In the same manner I am induced to believe, from a specimen in my cabinet, that his *Oliva irisans* is only a variety of *Oliva ispidula* with the spire covered with a callous deposit; and I have observed that several of the speci-

mens named *O. irisans* in the late Mr. Gaskoin's collection because they have a callous spire, are only varieties of *Oliva tremulina*; indeed some of the specimens which have not a callous spire are placed with them, under the name of *irisans*.

It is therefore evident that the character which has been regarded as of sectional or even generic importance, is not of permanent specific value in certain species, while it appears to be permanent and even one of the generic marks of other groups.

Tribe II. ANCILLARINA.

Shell subcylindrical, polished; suture of spire callous. Mantle without any posterior beard. Lateral teeth of the tongue simple, curved. Shell more or less covered with an enamel coat: outer lip often with a tooth in front, leaving an impressed groove on the outer surface of the front of the last whorl.

In the late Mr. Gaskoin's collection there were two specimens of a large ovate fusiform shell, from Albany in South Africa, which are arranged with *Ancilla*; but the spire is not callous, with a simple suture. It is probably arranged with this genus because it possesses an anterior sunken groove caused by a labial tooth; but this tooth and groove are found in several other genera, as *Chorus, Concholepas, Acanthiza, Gastridia, Latirus, Murex*, &c.

* *Shell partly covered with enamel.*

Genus 12. ANCILLA.

Spire covered with an enamel coat, forming a narrow belt on the penultimate whorl, not reaching to the hinder part of the mouth, and leaving a naked space on the whorl: axis perforated; outer lip with a tooth in front. Operculum large, distinct, oblong, acute; nucleus subapical, near the front of the inner side.

I have only observed the operculum in *A. obtusa* and *A. australis*.

† *Spire distinct.*

1. ANCILLA CINGULATA. B.M.

Ancillaria cingulata, *Sow. Spec. Conch. Ancill.* 6. f. 36, 37. *Kiener, Ancill.* 10. t. 4. f. 1, 1.

Hab. China (*Kiener*).

The apex rounded and rather large; the callous sutural band with a raised margin.

2. ANCILLA MARGINATA. B.M.

Ancillaria marginata, *Lamk. A. s. V.* vii. 413; *E. M.* t. 393.
Sow. Spec. Conch. Ancill. 7. f. 40, 41, 42, 43.
Swains. Journ. Sci. xviii. 280.
Kiener, Ancill. 11. t. 5. f. 1.

Var. alba. B.M.

Hab. Australia (*Kiener*); Van Diemen's Land.

Brown bands darker spotted, or more or less pure white.

†† *Spire of adult covered with a thick coat.*

3. ANCILLA RUBIGINOSA. B.M.

Ancillaria rubiginosa, *Swains. Journ. Sci.* xviii. 283; *Zool. Illustr.* 2nd series, t. 1.
Sow. Spec. Conch. Ancill. 8. f. 49, 50, 51, 52.
Kiener, Ancill. 6. t. 2. f. 2.

Hab. East coast of Africa (*cab. Gray*). China (*Kiener*).

4. ANCILLA OBLONGA. B.M.

Ancillaria oblonga, *Gray.*
Sow. Spec. Conch. Ancill. 7. f. 38, 39.
Kiener, Ancill. 13. t. 4. f. 2.
Ancillaria lineata, *Kiener, Ancill.* 16. t. 3. f. 2.

Hab. Australia; Port Jackson.

5. ANCILLA CAPENSIS. B.M.

Pale brown, with a brown-spotted sutural callous band, and with a series of brown spots in front of the whorl, just behind the brown edge of the frontal band.

Hab. South Africa.

The sutural band is much narrower than in the young of *A. obtusa.*

6. ANCILLA AUSTRALIS. B.M.

Ancillaria australis, *Sow. Spec. Conch. Ancill.* 7. f. 44, 45.
Kiener, Ancill. 9. t. 5. f. 2, 3.
A. sillon blanc, *Quoy, Voy. Astrol.* t. 49. f. 56.
Ancilla australis, *Gray, Guide B. M.* 25; *M. E. Gray, Figures of Mollusca*, t. 19. f. 5.
Ancilla fusca, *Gray.*

Var. Paler. Ancillaria mucronata, *Sow. Spec. Conch. Ancill.* 8. f. 47, 48.
Kiener, Ancill. 7. t. 3. f. 3.

Hab. New Zealand.

Operculum ovate, lanceolate, about two-thirds the length of the aperture of the shell.

7. ANCILLA OBTUSA. B.M.

Ancillaria obtusa, *Swains. Journ. Sci.* xviii. 282.
Sow. Spec. Conch. Ancill. 5. f. 24, 25.

Hab. Coast of Africa; Algoa Bay.

Operculum ovate, oblong, about one-half the length of the mouth of the shell.

Genus 13. SANDELLA.

Shell ovate, covered with an enamel coat forming a broad belt on the back of the whorls, and reaching in the penultimate whorl to the back of the mouth; axis imperforate; outer lip with an obscure tooth in front. Operculum —— ? Animal —— ?

1. SANDELLA TANKERVILLII. B.M.

Ancillaria tankervillii, *Swains. Journ. Sci. & Arts*, xviii. 283.
Tank. Cat. no. 2285.
Sow. Spec. Conch. Ancill. 8. f. 53, 54, 55.
Kiener, 5. t. 3. f. 1.
Sandella tankervillii, *Gray, Guide B. M.* 26.

Hab. Columbia; Island of Margaretta.

Genus 14. RUPERTIA.

Shell ovate, covered with an enamel coat forming a broad belt on the back of the whorls, not reaching to the back of the mouth; axis deeply perforated; outer lip with an obscure tooth in front. Operculum —— ? Animal —— ?

1. RUPERTIA BALTEATA.

Pale yellow, or white.

Eburna balteata, *Sow. Gen.* no. 19. f. 3, 4.
Ancillaria balteata, *Swains. Journ. Sci.* xviii. 284.
Sow. Spec. Conch. Ancill. 9. f. 56, 57.
Kiener, Ancill. 13. t. 4. f. 4, 5.

Var. Ancillaria nivea, *Swains. Journ. Sci.* xviii. 285.
Sow. Spec. Conch. Ancill. 9. f. 58, 59.
Kiener, Ancill. 12. t. 4. f. 3.

** *Shell entirely covered with an enamel coat.*

Genus 15. EBURNA.

Shell entirely covered with an enamel coat; spire conical; axis deeply perforated; outer lip with an obscure tooth in front. Animal —— ? Operculum —— ?

Eburna, *Lamk.*

1. EBURNA GLABRATA. B.M.

Buccinum glabratum, *Linn. S. N.* 1208.
Martini, Conch. iv. 10. t. 122. f. 1127.
Eburna glabrata, *Lamk. A. s. V.* vii. 280; *E. M.* t. 401. f. 1.
Voluta butyracea, *Soland. MSS.*
Sow. Gen. Shells, f. 1.
Eburna flavida, *Lamk. A. s. V.* 78.
Gray, Guide B. M. 26.
Ancillaria glabrata, *Swains. Journ. Sci.* xviii. 285.
Sow. Spec. Conch. Ancill. 10. f. 60, 61, 62, 63, 64.
Kiener, Ancill. 3. t. 2. f. 1, 1.

Yelk yellow, orange, or white.

Hab. West Indies.

Dillwyn observes that this species bears a considerable affinity to the Olives (*R. Shells*, 621).

Genus 16. SPARELLA.

Shell entirely covered with an enamel coat; spire short, conical; axis not perforated; outer lip often marked with an obscure tooth in front. Operculum —— ?

† *Last whorl with a deep groove in front; outer lip with a tooth in front.*

1. SPARELLA CANDIDA. B.M.

Martini, Conch. ii. t. 65. f. 722.
Ancillaria candida, *Lamk. A. s. V.* vii. 414.
Swains. Journ. Sci. xviii. 275.
Sow. Spec. Conch. Ancill. 3. f. 5, 6, 7.
Kiener, Ancill. 25. t. 5. f. 4.

Var. White, tip sometimes yellow. B.M.

Var. Pale yellow, tip red. B.M.

Sparella candida, *Gray, Guide B. M.* 26.

Var. Pale brown, rather more ventricose (*Sow. l. c.* f. 7).

Hab. Mauritius; Ceylon (*Hayman*).

2. Sparella cinnamomea. B.M.

Palish.

Var. 1. Ancillaria cinnamomea, *Lamk. A. s. V.* vii. 413; *E. M.* t. 393. f. 8?
Sow. Spec. Conch. Ancill. 4. f. 10, 11, 12, 13.
Kiener, Ancill. 24. t. 1. f. 2.

Var. Ancillaria albifasciata, *Swains. Journ. Sci.* xviii. 276.

Var. 2. Ancillaria ventricosa, *Swains. Journ. Sci.* xvii. 279 (not syn.).

Ancillaria castanea, *Sow. Spec. Conch. Ancill.* 5. f. 20, 21, 22, 23 (not *Kiener*).

Ancillaria cinnamomea, *Children, Journ. Sci.* xvi. t. 5. f. 206.

Sparella ventricosa, *Gray, Guide B. M.* 26.

Ancillaria ventricosa, *Kiener, Ancill.* 18. t. 6. f. 3.

3. Sparella albisulcata. B.M.

Var. 3. Ancillaria cinnamomea, *Swains. Journ. Sci.* xviii. 277 (not *Lamk.*).

Ancillaria albisulcata, *Sow. Spec. Conch. Ancill.* 4. f. 14, 15, 16, 17, 18, 19.
Kiener, Ancill. 27. t. 6. f. 2.

Sparella albisulcata, *Gray, Guide B. M.* 26.

Ancilla marginata, *Sow. Gen.* f. 1.

Var. Brown.

Ancillaria achatina, *Kiener, Ancill.* 19. t. 3. f. 4.

Var. Ancillaria eburnea, *Desh. Ency. Méthod.*
Kiener, Ancill. 23. t. 7. f. 3 (not published).

Hab. Red Sea.

4. Sparella effusa.

Tooth none in figure, but two grooves.

Ancillaria effusa, *Swains. Journ. Sci.* xviii. 275.
Sow. Spec. Conch. Ancill. 4. f. 8, 9.
Kiener t. 6. f. 4.
Chemn Conch. x. t. 147. f. 1381.

Hab. China? (*cab. Gray*, from *G. B. Sowerby*).

Fulvous; spire and sutural band white; spire very short.

†† *Last whorl smooth ; outer lip without any tooth in front.*

5. SPARELLA VARIEGATA. B.M.

Ancillaria ventricosa, *Sow. Spec. Conch. Ancill.* 6. f. 26–32 (not *Lamk.* fide *Kiener*).
Ancillaria fulva, *Swains. Journ. Sci.* xviii. 278.
Ancillaria castanea, *Kiener, Ancill.* 20. t. 6. f. 1.
Var. Ancillaria variegata, *Swains. Journ. Sci.* xviii. 278.
Sparella ventricosa, *Gray, Guide B. M.* 26.
Hab. Mozambique; Red Sea.
Var. Red-brown. B.M.
Var. Pale brown. B.M.
Var. Pure white. B.M.
Var. Dwarf. Ancillaria exigua, *Sow. Spec. Conch. Ancill.* 6. f. 33. 34, 35.

6. SPARELLA APERTA. B.M.

Ancillaria aperta, *Sow. Spec. Conch. Ancill.* 3. f. 3, 4.
Sparella aperta, *Gray, Guide B. M.* 26.
Hab. "Islands of the Pacific Ocean."
Dark orange-red; mouth very large; spire very short.

*** *Shell concentrically grooved, without any enamel coat ; outer lip thin, not toothed.*

Genus 17. ANOLACEA.

Shell oblong, thin; spire short; outer lip thin, toothless: aperture large; axis imperforate. Operculum none. Foot very large, nearly burying the shell.

1. ANOLACEA MAURITIANA. B.M.

Shell red, brown, pale yellow, or pure white.
Ancillaria mauritiana, *Sow. Spec. Conch. Ancill.* 3. f. 1, 2.
Ancillaria volutella, *Desh. Ency. Méth.*?
Kiener, Ancill. 28. t. 1. f. 1, 1.
Anolacea mauritiana, *Gray, Guide B. M.* 26.
Var. Red-brown. B.M.
Var. Pale brown. B.M.
Hab. Mauritius and Mozambique.

Tribe III. HARPALINA.

Shell ventricose variced; pillar smooth. Operculum none.

Genus 18. HARPA.

Shell ovate oblong, thin, striated, with numerous polished, acute, rib-like varices; spire short, acute, last whorl very large; mouth ovate, elongate, broadly notched in front; outer lip with a thickened external varix; pillar lip simple, smooth, rounded, pointed in front. Operculum none. Head large; proboscis elongate, conical. Teeth —— ? Tentacles conical, close together over the mouth, with the eyes near their base. Foot very large, expanded, nicked on each side in front, elongate behind, often becoming truncate. The hinder part of the foot separates spontaneously when the animal is irritated, or killed in fresh water.

The varices have a strong spine at the hinder end near the suture, which is rarely rudimentary: some specimens have one or two other smaller spines in front of this spine: but one, and sometimes both are more or less completely obliterated: the three spines generally most distinct and equal-sized on *Harpa crenata*.

The number, form, thickness and thinness, and state of armature of the varices vary greatly in the individuals of the same species; but the character afforded by the structure of the outer lip, which has hitherto been but little attended to, seems to afford a good character for the separation of the kinds.

Kiener (the last writer on the subject) regards *H. conoidalis* as a mere variety of *H. ventricosa*, he unites a form of *H. conoidalis* with *H. nobilis* as a variety of that species, he considers *H. crenata* as the adult of *H. rosea*.

* *Outer lip rounded, smooth.*

† *Varices with broad brown cross bands.*

1. Harpa ventricosa. B.M.

Buccinum harpa, *Linn. S. N.* 1201.
Martini, Conch. iii. t. 519. f. 1090.
Buccinum harpa, var. A, *Dillw. R. S.* ii. 607.

Var. Varices few, thick, far apart.

Buccinum testudo, *Soland. MSS.*
Harpa ventricosa, *Lamk. Syst.* 79: *Hist. A. s. V.* vii. No. 2.
Kiener, Harpa, t. 1. f. 1, t. 6. f. 10.
Harpa ventricosa, var. intermedia, *Kiener, Harpa*, t. 6. f. 9.

Var. 2. Varices crowded, thin.
Buccinum costatum, *Linn. S. N.* 1202.
Martini, iii. t. 119. f. 1093.
Chemn. Conch. x. t. 152. f. 1452.
Harpa imperialis, *Lamk. Hist. Moll.* No. 1.
Harpa ventricosa, var., *Kiener, Harpa*, t. 2. f. 1.
Junior. Harpa cancellata, *Chemn.* x. t. 152. f. 1453.
Dillw. R. S. ii. 608.
Harpa striata, *E. M.* t. 404. f. 4 ?
Kiener, t. 4. f. 7.
Hab. Indian Ocean; Mauritius; Philippines.

†† *Varices with small cross lines.*

2. Harpa Lyra. B.M.

Harpa conoidalis, *Lamk. A. s. V.* vii.
Harpa ventricosa conoidalis, *Kiener, Harpa*, 7. t. 3. f. 4.
Harpa articularis, *Lamk. A. s. V.*
Kiener, Harpa, 8. t. 2. f. 3.
Var. Cross stripes of varices in pairs.
Buccinum lyra, *Solander, MSS.*
Martini, iii. t. 119. f. 1095 & 1097.
Var. Cross stripe on varices single, distant.
Buccinum barbiton, *Solander, MSS.*
Martini, iii. t. 119. f. 1092.
Chemn. x. t. 152. f. 1451.
Harpa nobilis, var., *Kiener, Harpa*, t. 6. f. 10.
Hab. Navigators' Islands.

3. Harpa minor. B.M.

Shell subcylindrical; spire conic.
Lister, Conch. 994. f. 57.
Harpa minor, *Lamk.*
Kiener, Harpa, 10. t. 4. f. 6.
Var. Harpa gracilis, *Sow.*
Hab. Red Sea; Navigators' Islands.

** *Outer lip rounded, crenated. Varices with broad pale cross bands.*

4. Harpa crenata. B.M.

Harpa crenata, *Swains.*
Harpa revoliana, *Lesson, Illust. Zool.* t. 36.
Harpa rosea, adult, *Kiener, Harpa*, 12. t. 5. f. 8.
Hab. Panama.

5. HARPA ROSEA. B.M.

Martini, Conch. t. 119. f. 1094.
Harpa rosea, *Lamk.*
Kiener, Harpa, 11. t. 5. f. 8.
Buccinum testudo, var., *Soland. MSS.*
Buccinum harpa, var. B, *Dillw. R. S.* ii. 607.

*** *Outer lip acute, dentated.*

6. HARPA CITHARA. B.M.

Shell ventricose.

Buccinum cithara, *Solander, MSS.*
Martini, iii. t. 119. f. 1091.
Harpa nobilis, *Lamk.*
Kiener, Harpa, 9. t. 3. f. 5, t. 6. f. 11.
Harpa ventricosa, jun., *Kiener, Harpa*, t. 1. f. 1 *a*.
Hab. Navigators' Islands.

THE END.

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